Appendix Table 1.1
Information Technology Producing Industries
1997 NAICS Classification

Hardware Industries	**1997 NAICS**
Computers and computer equipment and Calculating and office machines	333311, 3, 334111, 2, 3, 9, 334418
Wholesale trade of computers	421430pt
Retail trade of computers	443120pt
Electron tubes	334411
Printed circuit boards	334412
Semiconductors	334413
Passive electronic components	334414, 5, 6, 9
Industrial instruments for measurement	334513
Instruments for measuring electricity	334515
Laboratory analytical instruments	334516

Software/Computer Service Industries	
Computer programming services	541511
Prepackaged software	5112, 334611
Wholesale trade of software	421430pt
Retail trade of software	443120pt
Computer integrated system design	541512
Computer processing, data preparation	5142
Information retrieval services	51419
Computer services management	541513
Computer renting and leasing	532420
Computer maintenance and repair	811212
Computer related services, nec	541519

Communications Equipment Industries	
Household audio and video equipment	334310
Telephone and telegraph equipment	334210
Radio and TV communications equipment	334220, 90
Magnetic and optical recording media	334613

Communications Services Industries	
Telephone and telegraph communications	5133
Cable and other pay TV services	5132

Information Technology Producing Industries
Gross Domestic Product by Industry

	1996	1997	1998	1999	2000	2001	2002est.	2003est.
				($millions)				
Total Gross Domestic Product*	7,780,300.0	8,288,600.0	8,812,500.0	9,313,100.0	9,953,100.0	10,199,400.0	10,555,100.0	11,040,634.6
Year-to-Year GDI Change (%)		6.5%	6.3%	5.7%	6.9%	2.5%	3.5%	4.6%
Industry**								
Hardware								
Computers and equipment, calc. machines	51,151.5	56,140.3	66,727.0	62,262.7	54,966.8	46,390.4	43,699.8	46,234.3
Computers and equipment wholesale sales	59,767.0	68,224.1	72,395.8	77,211.5	72,212.3	58,795.6	55,400.9	58,614.2
Computer and equipment retail sales	4,794.1	5,465.7	6,110.2	6,431.1	6,410.0	5,581.3	5,785.2	6,120.7
Electron tubes	1,564.9	1,568.4	1,619.4	1,758.0	1,362.1	1,180.6	1,324.2	1,561.7
Printed circuit boards	5,048.3	5,062.3	5,047.7	5,557.1	6,626.8	4,731.7	5,307.3	6,259.2
Semiconductors	51,601.8	64,135.3	59,977.2	68,021.7	67,896.6	44,118.2	49,485.0	58,360.3
Passive electronic components	15,332.2	12,996.1	12,351.3	12,657.7	14,778.6	11,037.2	12,379.8	14,600.2
Industrial instruments for measurement	3,146.2	4,914.9	4,761.8	4,581.3	4,801.6	4,567.2	4,137.9	4,241.8
Instruments for measuring electricity	5,684.8	8,991.8	8,755.0	9,010.4	10,346.8	8,236.5	7,462.3	7,649.6
Laboratory analytical instruments	3,040.5	4,111.2	4,480.6	4,715.0	4,730.3	4,723.1	4,279.1	4,386.5
Total Hardware	201,131.5	231,610.1	242,226.0	252,206.5	244,131.9	189,361.8	189,261.4	208,028.6
Software and Computer Services								
Computer programming services	29,412.5	34,967.9	47,654.0	56,405.1	63,261.8	61,145.4	61,818.0	62,693.1
Prepackaged software	47,683.4	52,261.5	61,408.5	69,063.2	75,961.1	77,709.1	78,563.9	80,200.9
Prepackaged software wholesale sales	3,483.8	3,818.2	4,051.7	4,321.2	4,041.5	3,290.6	3,100.6	3,174.6
Prepackaged software retail sales	647.7	710.2	794.0	835.7	832.9	725.3	751.7	769.6
Computer integrated system design	34,039.8	43,940.7	58,225.6	66,114.9	75,136.8	73,733.1	74,544.2	75,600.4
Computer processing, data preparation	23,106.2	24,391.8	26,299.2	30,028.7	33,602.5	37,850.1	38,266.5	38,808.7
Information retrieval services	5,252.9	6,892.9	9,729.7	16,354.3	25,312.6	26,155.7	26,443.4	26,818.1
Computer services management	10,150.4	11,789.0	9,278.9	11,882.5	12,779.5	14,891.0	15,054.8	15,268.1
Office machinery rental and leasing	4,160.1	4,820.9	6,495.8	7,292.2	7,846.8	6,635.5	6,708.5	6,803.6
Computer maintenance and repair	5,941.1	6,631.8	7,961.3	8,480.2	8,494.3	8,652.2	8,747.4	8,871.3
Computer related services, nec	2,460.0	3,385.2	6,060.6	7,496.6	9,330.4	9,548.0	9,653.0	9,789.7
Total Software and Computer Services	166,338.0	193,610.1	237,959.3	278,274.6	316,600.2	320,336.0	323,651.9	328,798.2
Communications Equipment								
Household audio and video equipment	1,731.2	2,372.8	2,663.0	2,855.0	3,221.2	3,143.0	2,668.4	2,601.4
Telephone equipment, exc. ext. modems	16,958.9	23,766.1	25,415.7	32,744.8	35,843.0	28,005.2	23,776.4	22,087.2
Radio & TV communications equipment	18,016.1	24,273.9	22,839.9	23,122.9	26,756.9	22,751.6	19,316.1	17,943.8
Magnetic and optical and recording media	2,302.1	2,300.2	2,242.3	1,902.5	1,440.6	989.9	840.4	819.3
Total Communications Equipment	39,008.3	52,713.0	53,160.9	60,625.2	67,261.7	54,889.7	46,601.4	43,451.7
Communications Services								
Telephone and telegraph communications	163,900.0	166,700.0	173,900.0	193,700.0	208,000.0	218,500.0	224,846.0	240,980.0
Cable and other pay TV services	18,665.4	21,490.0	32,216.0	36,876.2	41,819.5	45,823.4	47,211.9	50,616.8

Total Communications Services	182,565.4	188,190.0	206,116.0	230,576.2	249,819.5	264,323.4	272,057.9	291,596.8
Total IT-Producing Industries	589,043.2	666,123.2	739,462.2	821,682.5	877,813.3	828,910.9	831,572.6	871,875.2
Share of the Economy	7.6%	8.0%	8.4%	8.8%	8.8%	8.1%	7.9%	7.9%

*Gross Domestic Product here is Gross Domestic Income.

** See industry classification in Table A-1.1

Sources: Estimates based on BEA and Census data for 1996-2001;
Estimates for 2002 based on BEA data and the U. of MD.
İnput-output model; estimates for 2003 based on the U. of MD.
input-output model and the Global Insights, Inc. forecast.

Appendix Table 1.3
Information Technology Producing Industries
Real Gross Domestic Product By Industry

	1996	1997	1998	1999	2000	2001	2002est	2003est
				(Millions of 1996$, except as noted)				
Total Gross Domestic Product*	7,780,300.0	8,130,169.6	8,538,937.7	8,896,062.5	9,311,618.1	9,321,613.5	9,538,309.5	9,814,920.5
Year-to-Year GDI Change (%)		4.5%	5.0%	4.2%	4.7%	0.1%	2.3%	2.9%
Industry**								
Hardware								
Computers and equipment, calc. machines	51,151.5	72,573.3	117,049.6	142,846.1	145,164.2	149,987.3	167,083.8	209,517.7
Computers and equipment wholesale sales	59,767.0	88,194.2	126,993.6	177,142.3	190,708.6	190,095.2	211,822.6	265,618.6
Computer and equipment retail sales	4,794.1	5,501.1	6,184.4	6,543.2	6,568.2	5,697.5	5,843.6	6,167.5
Electron tubes	1,564.9	1,722.5	2,144.3	2,717.7	2,621.6	2,765.5	3,072.4	4,126.3
Printed circuit boards	5,048.3	5,559.7	6,683.8	8,590.8	12,754.5	11,083.6	12,313.9	16,537.6
Semiconductors	51,601.8	70,436.7	79,417.0	105,155.1	130,680.0	103,343.3	114,814.4	154,195.7
Passive electronic components	15,332.2	14,273.0	16,354.6	19,567.6	28,444.2	25,853.7	28,723.5	38,575.7
Industrial instruments for measurement	3,146.2	4,900.1	4,735.6	4,545.3	4,742.5	4,462.4	3,955.9	4,094.4
Instruments for measuring electricity	5,684.8	8,964.8	8,706.8	8,939.6	10,219.4	8,047.6	7,134.1	7,383.8
Laboratory analytical instruments	3,040.5	4,098.9	4,455.9	4,678.0	4,672.0	4,614.8	4,090.9	4,234.1
Total Hardware	201,131.3	275,491.5	364,104.6	464,501.1	524,504.7	485,611.2	527,628.9	665,419.2
Software and Computer Services								
Computer programming services	29,412.5	34,417.2	46,176.4	53,464.5	58,091.6	56,199.8	55,691.9	56,582.2
Prepackaged software	47,683.4	53,383.0	64,476.7	71,953.2	78,078.2	78,398.3	79,810.3	80,847.7
Prepackaged software wholesale sales	3,483.8	3,900.1	4,254.1	4,502.0	4,154.1	3,319.8	3,149.8	3,200.2
Prepackaged software retail sales	647.7	725.4	833.7	870.7	856.1	731.7	763.6	775.8
Computer integrated system design	34,039.8	43,248.7	56,420.2	62,668.2	68,996.1	67,769.4	67,156.9	68,231.4
Computer processing, data preparation	23,106.2	24,007.7	25,483.7	28,463.2	30,856.3	34,788.7	34,474.3	35,025.9
Information retrieval services	5,252.9	6,784.4	9,428.0	15,501.7	23,243.9	24,040.2	23,822.9	24,204.1
Computer services management	10,150.4	11,603.3	8,991.2	11,263.0	11,735.1	13,686.6	13,562.9	13,779.9
Office machinery rental and leasing	4,160.1	4,745.0	6,294.4	6,912.0	7,205.5	6,098.8	6,043.7	6,140.4
Computer maintenance and repair	5,941.1	6,527.1	7,714.4	8,038.1	7,800.1	7,952.4	7,880.5	8,006.6
Computer related services, nec	2,460.0	3,331.9	5,872.7	7,105.8	8,567.9	8,775.7	8,696.4	8,835.5
Total Software and Services	166,337.9	192,711.1	236,076.0	271,106.7	300,239.0	302,545.4	301,682.2	306,287.8
Communications								
Household audio and video equipment	1,731.2	2,398.6	2,807.3	3,123.1	3,649.4	3,670.3	2,998.2	2,926.3
Telephone equipment, exc. ext. modems	16,958.9	24,024.1	26,792.9	35,820.1	40,607.7	32,703.6	26,715.1	24,845.0
Radio & TV communications equipment	18,016.1	24,537.4	24,077.5	25,294.5	30,313.8	26,568.6	21,703.5	20,184.2
Magnetic and optical and recording media	2,302.1	2,325.2	2,363.8	2,081.2	1,632.1	1,156.0	944.3	921.6
Total Communications Equipment	39,008.3	53,285.2	56,041.5	66,318.9	76,203.0	64,098.6	52,361.0	48,877.1
Telephone and telegraph communications	163,900.0	167,900.0	181,300.0	205,300.0	236,700.0	265,700.0	274,202.4	278,589.6
Cable and other pay TV services	18,665.4	19,824.7	27,417.9	29,859.3	31,419.6	37,714.7	38,921.6	39,544.3
Total Communications Services	182,565.4	187,753.5	204,009.8	235,691.4	267,699.8	303,950.2	313,676.6	318,695.4
Total IT-Producing Industries***	**589,042.9**	**706,414.8**	**848,963.1**	**1,012,026.1**	**1,138,433.4**	**1,149,136.1**	**1,167,284.9**	**1,241,516.3**

*Gross Domestic Product here is Gross Domestic Income.

**See industry classification in Table A-1.1

***Real chain weighted 1996 dollars are not directly additive.

Sources: Estimates derived from BEA and Census data;
       Estimates for 2002 based on BEA data and the U. of MD.
        input-output model; estimates for 2003 based on the U. of MD.
       input-output model and the Global Insights, Inc. forecast.

Appendix Table 2.1:
IT Manufacturing and IT Services Industry Employment Trends 1993-2002

	2002 NAICS Code	Employment (000s)										Average Annual Rate of Growth (%)		
		1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	93-00	00-01	01-02
IT- Manufacturing														
Electronic computers	334111	189.0	175.9	166.2	165.7	172.6	178.3	171.3	168.6	159.3	138.4	-1.6	-5.5	-13.1
Computer storage devices	334112	34.6	35.5	37.7	38.5	39.6	39.0	40.5	38.0	37.0	32.8	1.3	-2.6	-11.4
Computer terminals	334113	24.2	24.7	25.8	26.1	26.8	26.6	25.5	25.2	23.8	21.3	0.6	-5.6	-10.5
Other computer peripheral equipment	334119	57.9	61.6	65.8	74.3	77.8	78.4	72.8	70.1	66.1	57.2	2.8	-5.7	-13.5
Electron tubes	334411	24.8	24.5	24.0	22.9	21.9	20.7	20.6	20.4	19.1	16.2	-2.8	-6.4	-15.2
Bare printed circuit boards	334412	96.7	102.0	115.3	123.8	132.1	134.0	126.5	139.5	120.2	83.9	5.4	-13.8	-30.2
Semiconductors and related devices	334413	210.5	217.0	231.5	255.5	272.9	279.9	268.0	289.2	292.1	254.8	4.6	1.0	-12.8
Electronic capacitors	334414	16.4	16.7	18.2	17.4	17.0	15.9	15.2	16.9	14.4	11.0	0.4	-14.8	-23.6
Electronic connectors	334417	15.3	15.9	17.3	18.5	20.3	20.4	21.9	24.2	23.7	18.1	6.8	-2.1	-23.6
Printed circuit assemblies	334418	52.7	53.8	55.2	56.9	60.0	62.0	61.8	64.4	60.8	51.2	2.9	-5.6	-15.8
Miscellaneous electronic components	334415,6,9	103.0	105.5	109.5	111.6	115.6	116.9	116.5	121.7	115.1	96.2	2.4	-5.4	-16.4
Industrial process variable instruments	334513	59.6	61.1	63.3	65.2	65.6	67.2	68.9	70.1	67.4	61.2	2.3	-3.9	-9.2
Electricity and signal testing instruments	334515	69.6	68.0	68.0	71.0	72.0	72.5	65.2	65.8	65.1	54.8	-0.8	-1.1	-15.8
Analytical laboratory instruments	334516	38.6	36.8	36.0	36.5	36.9	37.3	36.5	35.7	35.4	33.6	-1.1	-0.7	-5.2
Semiconductor machinery	333295	18.1	19.3	22.4	24.3	24.9	25.2	23.1	24.7	23.2	19.6	4.5	-6.1	-15.5
Office machinery	333313	14.7	14.9	15.6	15.8	16.2	16.1	15.4	15.3	14.7	12.7	0.6	-3.9	-13.6
Software reproducing	334611	20.3	21.8	23.7	24.8	25.4	26.3	26.9	28.2	27.1	25.3	4.8	-4.1	-6.4
Magnetic and optical recording media	334613	5.4	5.7	6.2	6.5	6.7	6.9	7.1	7.4	7.1	6.7	4.8	-4.1	-6.4
Telephone apparatus	334210	92.4	92.0	93.8	96.2	100.8	105.6	101.6	106.5	97.2	70.6	2.0	-8.7	-27.4
Broadcast and wireless communications equipment	334220	93.3	100.2	110.6	112.4	113.8	110.8	104.4	107.3	102.5	89.1	2.0	-4.5	-13.1
Audio and video equipment	334310	57.2	57.6	53.8	52.9	52.0	53.2	52.4	52.1	47.4	41.6	-1.3	-9.0	-12.2
Fiber optic cable manufacturing	335921	14.7	15.4	15.8	15.9	16.4	16.9	17.9	20.4	20.2	15.1	4.8	-1.2	-25.1
All IT Manufacturing		**1,309.0**	**1,326.0**	**1,375.8**	**1,432.8**	**1,487.3**	**1,510.2**	**1,460.1**	**1,511.8**	**1,438.9**	**1,211.4**	**2.1**	**-4.8**	**-15.8**
IT Services														
Wired telecommunications carriers	517110	624.5	621.9	611.1	603.2	629.9	652.1	688.1	719.2	732.2	662.4	2.0	1.8	-9.5
Cellular and other wireless carriers	517212	47.4	60.3	75.9	92.5	111.0	121.1	134.3	155.7	171.0	168.7	18.5	9.8	-1.3
Telecommunications resellers	517310	170.5	171.8	171.2	171.6	181.3	188.7	200.2	213.6	214.1	185.7	3.3	0.2	-13.3
Cable and other program distribution	517510	75.8	80.4	86.6	94.6	96.9	102.4	110.9	123.0	129.2	128.0	7.2	5.0	-0.9
Satellite and other telecommunications services	517410,910	15.1	15.3	16.5	17.5	19.3	20.4	20.5	21.2	25.2	28.9	5.0	18.9	14.7
Software publishers	511210	125.9	136.8	157.2	174.8	195.2	214.9	235.0	260.6	268.9	256.0	11.0	3.2	-4.8
ISPs and web search portals	518111,2	39.7	41.2	48.6	59.6	70.4	86.4	132.2	194.3	176.8	142.1	25.5	-9.0	-19.6
Data processing and related services	518210	223.4	226.9	242.6	252.0	268.4	282.8	307.1	315.7	316.8	305.3	5.1	0.3	-3.6
Custom computer programming services	541511	199.4	220.6	255.7	286.4	331.8	388.6	464.2	540.0	562.9	511.8	15.3	4.2	-9.1
Computer systems design services	541512	190.1	209.4	242.6	285.2	343.2	408.1	468.7	502.9	520.3	462.4	14.9	3.5	-11.1
Computer facilities management services	541513	51.8	51.4	52.8	54.5	55.4	58.6	63.9	64.9	64.6	58.4	3.3	-0.5	-9.6
Other computer-related services	541519	43.6	49.9	60.2	75.3	96.3	119.6	136.1	146.5	150.1	130.1	18.9	2.5	-13.3
Computer and software wholesalers	423430	222.9	223.1	233.6	249.3	273.5	303.2	319.0	315.2	295.8	265.6	5.1	-6.2	-10.2
Computer and software retailers	443120	136.2	143.9	155.7	167.5	186.4	198.2	212.3	216.4	202.3	183.1	6.8	-6.5	-9.5
Office machine rentals and leasing	532420	10.5	10.6	11.0	11.5	12.0	12.8	12.9	13.1	12.9	13.0	3.3	-1.5	0.6
Computer and office machine repair	811212	39.9	41.4	44.6	48.2	51.2	51.4	51.0	47.7	48.3	46.6	2.6	1.3	-3.5
Communications equipment repair and leasing	811213	18.1	18.2	19.2	20.3	20.9	20.8	20.6	19.8	20.1	19.4	1.3	1.5	-3.1
All IT Services		**2,234.7**	**2,323.0**	**2,485.1**	**2,664.1**	**2,943.1**	**3,230.1**	**3,576.9**	**3,869.8**	**3,911.5**	**3,567.5**	**8.2**	**1.1**	**-8.8**
ALL IT-PRODUCING INDUSTRIES		**3,544**	**3,649**	**3,861**	**4,097**	**4,430**	**4,740**	**5,037**	**5,382**	**5,350**	**4,779**	**6.2**	**-0.6**	**-10.7**
year to year rate of change (%)			3.0%	5.8%	6.1%	8.1%	7.0%	6.3%	6.8%	-0.6%	-10.7%			
ALL PRIVATE INDUSTRIES		**91,855**	**95,016**	**97,866**	**100,169**	**103,113**	**106,021**	**108,686**	**110,996**	**110,707**	**108,886**	**2.7**	**-0.3**	**-1.6**
IT share of all private industries		3.9%	3.8%	3.9%	4.1%	4.3%	4.5%	4.6%	4.8%	4.8%	4.4%			

Appendix Table 2.2:
IT-Producing Industry Employment, 1993-2002

	2002 NAICS Code	Employment (000s)										Average Annual Rate of Growth (%)		
		1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	93-00	00-01	01-02
Computer Hardware														
Electronic computers	334111	189.0	175.9	166.2	165.7	172.6	178.3	171.3	168.6	159.3	138.4	-1.6	-5.5	-13.1
Computer storage devices	334112	34.6	35.5	37.7	38.5	39.6	39.0	40.5	38.0	37.0	32.8	1.3	-2.6	-11.4
Computer terminals	334113	24.2	24.7	25.8	26.1	26.8	26.6	25.5	25.2	23.8	21.3	0.6	-5.6	-10.5
Other computer peripheral equipment	334119	57.9	61.6	65.8	74.3	77.8	78.4	72.8	70.1	66.1	57.2	2.8	-5.7	-13.5
Computer and software wholesalers	423430	211.0	211.2	221.1	236.0	258.9	287.0	302.0	298.4	280.0	251.4	5.1	-6.2	-10.2
Computer and software retailers	443120	120.4	127.3	137.7	148.1	164.8	175.3	187.8	191.4	178.9	162.0	6.8	-6.5	-9.5
Electron tubes	334411	24.8	24.5	24.0	22.9	21.9	20.7	20.6	20.4	19.1	16.2	-2.8	-6.4	-15.2
Bare printed circuit boards	334412	96.7	102.0	115.3	123.8	132.1	134.0	126.5	139.5	120.2	83.9	5.4	-13.8	-30.2
Semiconductors and related devices	334413	210.5	217.0	231.5	255.5	272.9	279.9	268.0	289.2	292.1	254.8	4.6	1.0	-12.8
Electronic capacitors	334414	16.4	16.7	18.2	17.4	17.0	15.9	15.2	16.9	14.4	11.0	0.4	-14.8	-23.6
Electronic connectors	334417	15.3	15.9	17.3	18.5	20.3	20.4	21.9	24.2	23.7	18.1	6.8	-2.1	-23.6
Printed circuit assemblies	334418	52.7	53.8	55.2	56.9	60.0	62.0	61.8	64.4	60.8	51.2	2.9	-5.6	-15.8
Miscellaneous electronic components	334415,6,9	103.0	105.5	109.5	111.6	115.6	116.9	116.5	121.7	115.1	96.2	2.4	-5.4	-16.4
Industrial process variable instruments	334513	59.6	61.1	63.3	65.2	65.6	67.2	68.9	70.1	67.4	61.2	2.3	-3.9	-9.2
Electricity and signal testing instruments	334515	69.6	68.0	68.0	71.0	72.0	72.5	65.2	65.8	65.1	54.8	-0.8	-1.1	-15.8
Analytical laboratory instruments	334516	38.6	36.8	36.0	36.5	36.9	37.3	36.5	35.7	35.4	33.6	-1.1	-0.7	-5.2
Semiconductor machinery	333295	18.1	19.3	22.4	24.3	24.9	25.2	23.1	24.7	23.2	19.6	4.5	-6.1	-15.5
Office machinery	333313	14.7	14.9	15.6	15.8	16.2	16.1	15.4	15.3	14.7	12.7	0.6	-3.9	-13.6
Total Computer Hardware		**1,357.2**	**1,371.7**	**1,430.6**	**1,508.2**	**1,595.9**	**1,652.8**	**1,639.5**	**1,679.6**	**1,596.4**	**1,376.4**	**3.1**	**-5.0**	**-13.8**
Software and Computer Services														
Software publishers	511210	125.9	136.8	157.2	174.8	195.2	214.9	235	260.6	268.9	256	11.0	3.2	-4.8
ISPs and web search portals	518111,2	39.7	41.2	48.6	59.6	70.4	86.4	132.2	194.3	176.8	142.1	25.5	-9.0	-19.6
Data processing and related services	518210	223.4	226.9	242.6	252	268.4	282.8	307.1	315.7	316.8	305.3	5.1	0.3	-3.6
Computer and software wholesalers	423430	11.9	11.9	12.5	13.3	14.6	16.2	17.0	16.8	15.8	14.2	5.1	-6.2	-10.2
Computer and software retailers	443120	15.7	16.6	18.0	19.4	21.5	22.9	24.5	25.0	23.4	21.2	6.8	-6.5	-9.5
Custom computer programming services	541511	199.4	220.6	255.7	286.4	331.8	388.6	464.2	540.0	562.9	511.8	15.3	4.2	-9.1
Computer systems design services	541512	190.1	209.4	242.6	285.2	343.2	408.1	468.7	502.9	520.3	462.4	14.9	3.5	-11.1
Computer facilities management services	541513	51.8	51.4	52.8	54.5	55.4	58.6	63.9	64.9	64.6	58.4	3.3	-0.5	-9.6
Other computer-related services	541519	43.6	49.9	60.2	75.3	96.3	119.6	136.1	146.5	150.1	130.1	18.9	2.5	-13.3
Office machine rentals and leasing	532420	10.5	10.6	11.0	11.5	12.0	12.8	12.9	13.1	12.9	13.0	3.3	-1.5	0.6
Computer and office machine repair	811212	39.9	41.4	44.6	48.2	51.2	51.4	51.0	47.7	48.3	46.6	2.6	1.3	-3.5
Total Software and Computer Services		**951.9**	**1,016.7**	**1,145.7**	**1,280.2**	**1,460.0**	**1,662.2**	**1,912.6**	**2,127.5**	**2,160.8**	**1,961.0**	**12.2**	**1.6**	**-9.2**
Communications Equipment														
Telephone apparatus	334210	92.4	92.0	93.8	96.2	100.8	105.6	101.6	106.5	97.2	70.6	2.0	-8.7	-27.4
Broadcast and wireless communications equipment	334220	93.3	100.2	110.6	112.4	113.8	110.8	104.4	107.3	102.5	89.1	2.0	-4.5	-13.1
Audio and video equipment	334310	57.2	57.6	53.8	52.9	52	53.2	52.4	52.1	47.4	41.6	-1.3	-9.0	-12.2
Fiber optic cable manufacturing	335921	14.7	15.4	15.8	15.9	16.4	16.9	17.9	20.4	20.2	15.1	4.8	-1.2	-25.1
Software reproducing	334611	20.3	21.8	23.7	24.8	25.4	26.3	26.9	28.2	27.1	25.3	4.8	-4.1	-6.4
Magnetic and optical recording media	334613	5.4	5.7	6.2	6.5	6.7	6.9	7.1	7.4	7.1	6.7	4.8	-4.1	-6.4
Total Communications Equipment		**283.3**	**292.8**	**304.0**	**308.8**	**315.1**	**319.7**	**310.3**	**322.0**	**301.5**	**248.4**	**1.8**	**-6.4**	**-17.6**
Communications Services														
Wired telecommunications carriers	517110	624.5	621.9	611.1	603.2	629.9	652.1	688.1	719.2	732.2	662.4	2.0	1.8	-9.5
Cellular and other wireless carriers	517212	47.4	60.3	75.9	92.5	111.0	121.1	134.3	155.7	171.0	168.7	18.5	9.8	-1.3
Telecommunications resellers	517310	170.5	171.8	171.2	171.6	181.3	188.7	200.2	213.6	214.1	185.7	3.3	0.2	-13.3
Cable and other program distribution	517510	75.8	80.4	86.6	94.6	96.9	102.4	110.9	123	129.2	128	7.2	5.0	-0.9
Satellite and other telecommunications services	517410,910	15.1	15.3	16.5	17.5	19.3	20.4	20.5	21.2	25.2	28.9	5.0	18.9	14.7
Communications equipment repair and leasing	811213	18.1	18.2	19.2	20.3	20.9	20.8	20.6	19.8	20.1	19.4	1.3	1.5	-3.1
Total Communications Services		**951.4**	**967.9**	**980.5**	**999.7**	**1,059.3**	**1,105.5**	**1,174.6**	**1,252.5**	**1,291.8**	**1,193.1**	**4.0**	**3.1**	**-7.6**
ALL IT-PRODUCING INDUSTRIES		**3,543.8**	**3,649.0**	**3,860.8**	**4,096.9**	**4,430.4**	**4,740.3**	**5,037.0**	**5,381.6**	**5,350.4**	**4,779.0**	**6.2**	**-0.6**	**-10.7**
(year to year rate of change)			3.0%	5.8%	6.1%	8.1%	7.0%	6.3%	6.8%	-0.6%	-10.7%			
ALL PRIVATE INDUSTRIES		**91,855**	**95,016**	**97,866**	**100,169**	**103,113**	**106,021**	**108,686**	**110,996**	**110,707**	**108,886**	**2.7**	**-0.3**	**-1.6**
IT share of all private industries		3.9%	3.8%	3.9%	4.1%	4.3%	4.5%	4.6%	4.8%	4.8%	4.4%			

Average Annual Wages Per Worker, by IT Industry, 2001-2002

Rank (2002)	NAICS Code	IT-Producing Industries	Annual Average Wages		Change 2001-02	%Change 2001-02
			2001	**2002**		
		Average All Private Industries	**$36,160**	**$36,520**	**$360**	**1.0%**
		Average All IT-Producing Industries	**$68,330**	**$67,440**	**-$890**	**-1.3%**
1	511210	Software Publishers	$104,810	$99,440	-$5,370	-5.1%
2	334111	Electronic Computer Manufacturing	$95,050	$93,020	-$2,030	-2.1%
3	334611	Software Reproducing	$89,570	$92,260	$2,690	3.0%
4	333295	Semiconductor Machinery Manufacturing	$86,320	$85,470	-$850	-1.0%
5	423430	Computer and Software Wholesalers	$88,530	$84,840	-$3,690	-4.2%
6	334112	Computer Storage Device Manufacturing	$82,270	$82,810	$540	0.7%
7	334113	Computer Terminal Manufacturing	$81,410	$82,610	$1,200	1.5%
8	541511	Custom Computer Programming Services	$77,540	$76,080	-$1,460	-1.9%
9	334413	Semiconductor and Related Device Manufacturing	$78,820	$75,870	-$2,950	-3.7%
10	541512	Computer Systems Design Services	$75,950	$75,070	-$880	-1.2%
11	334515	Electricity and Signal Testing Instruments	$70,240	$73,900	$3,660	5.2%
12	334210	Telephone Apparatus Manufacturing	$70,740	$72,940	$2,200	3.1%
13	518111,12	ISPs and Web Search Portals	$83,090	$69,270	-$13,820	-16.6%
14	334119	Other Computer Peripheral Equipment Manufacturing	$67,190	$68,770	$1,580	2.4%
15	334516	Analytical Laboratory Instrument Manufacturing	$64,700	$64,980	$280	0.4%
16	517410,910	Satellite and Other Telecommunications Services	$60,830	$64,280	$3,450	5.7%
17	541519	Other Computer Related Services	$65,750	$64,200	-$1,550	-2.4%
18	334220	Broadcast and Wireless Communications Equipment	$61,240	$63,010	$1,770	2.9%
19	517110	Wired Telecommunications Carriers	$59,270	$60,810	$1,540	2.6%
20	541513	Computer Facilities Management Services	$63,620	$60,770	-$2,850	-4.5%
21	532420	Office Machinery and Equipment Rental and Leasing	$58,600	$59,860	$1,260	2.2%
22	333313	Office Machinery Manufacturing	$57,630	$59,850	$2,220	3.9%
23	334411	Electron Tube Manufacturing	$58,220	$59,350	$1,130	1.9%
24	517310	Telecommunications Resellers	$55,110	$56,790	$1,680	3.0%
25	518210	Data Processing, Hosting, and Related Services	$55,650	$55,820	$170	0.3%
26	517212	Cellular and Other Wireless Telecommunications	$56,970	$54,330	-$2,640	-4.6%
27	334513	Industrial Process Control Instruments	$52,290	$53,500	$1,210	2.3%
28	443120	Computer and Software Retailers	$53,700	$52,870	-$830	-1.5%
29	335921	Fiber Optic Cable Manufacturing	$48,060	$51,630	$3,570	7.4%
30	334613	Magnetic and Optical Recording Media Manufacturing	$49,660	$49,590	-$70	-0.1%
31	334310	Audio and Video Equipment Manufacturing	$46,790	$48,850	$2,060	4.4%
32	334418	Printed Circuit Assembly	$47,950	$48,010	$60	0.1%
33	811213	Communication Equipment Repair and Maintenance	$43,800	$44,650	$850	1.9%
34	334415,6,9	Misc. components	$43,990	$43,820	-$170	-0.4%
35	811212	Computer and Office Machine Repair and Maintenance	$44,210	$43,770	-$440	-1.0%
36	517510	Cable and Other Program Distribution	$42,560	$43,430	$870	2.0%

37	334417	Electronic Connector Manufacturing	$39,550	$42,790	$3,240	8.2%
38	334412	Bare Printed Circuit Board Manufacturing	$38,680	$40,020	$1,340	3.5%
39	334414	Electronic Capacitor Manufacturing	$35,040	$37,750	$2,710	7.7%

Source: Estimates derived from BLS Covered Employment and Wages data.

Appendix Table 2.4:
Employment, by IT Occupation, 1999-2002

SOC Code	Occupation	1999	2000	2001	2002	Percent change 1999-2000	Percent change 2000-2001	Percent change 2001-2002	Education/ training requirement*
	Total	6,237,460	6,469,860	6,151,170	5,953,470	3.7%	-4.9%	-3.2%	--
11-3021	Computer and Information Systems Managers	280,820	283,480	267,310	264,790	0.9	-5.7	-0.9	High
11-9041	Engineering Managers	248,210	242,280	214,760	205,390	-2.4	-11.4	-4.4	High
15-1011	Computer and Information Scientists, Research	26,280	25,800	25,620	24,410	-1.8	-0.7	-4.7	High
15-1021	Computer Programmers	528,600	530,730	501,550	457,320	0.4	-5.5	-8.8	High
15-1031	Computer Software Engineers, Applications	287,600	374,640	361,690	356,760	30.3	-3.5	-1.4	High
15-1032	Computer Software Engineers, Systems Software	209,030	264,610	261,520	255,040	26.6	-1.2	-2.5	High
15-1041	Computer Support Specialists	462,840	522,570	493,240	478,560	12.9	-5.6	-3.0	High
15-1051	Computer Systems Analysts	428,210	463,300	448,270	467,750	8.2	-3.2	4.3	High
15-1061	Database Administrators	101,460	108,000	104,250	102,090	6.4	-3.5	-2.1	High
15-1071	Network and Computer Systems Administrators	204,680	234,040	227,840	232,560	14.3	-2.6	2.1	High
15-1081	Network Systems and Data Communications Analysts	98,330	119,220	126,060	133,460	21.2	5.7	5.9	High
17-2061	Computer Hardware Engineers	60,420	63,680	67,590	67,180	5.4	6.1	-0.6	High
17-2071	Electrical Engineers	149,210	162,400	151,300	146,180	8.8	-6.8	-3.4	High
17-2072	Electronics Engineers, Except Computer	106,830	123,690	123,210	126,020	15.8	-0.4	2.3	High
17-3023	Electrical and Electronic Engineering Technicians	242,160	244,570	220,800	194,960	1.0	-9.7	-11.7	High
43-9021	Data Entry Keyers	520,220	458,720	405,000	376,970	-11.8	-11.7	-6.9	Moderate
49-2011	Computer, Automated Teller, and Office Machine Repairers	130,090	142,390	143,810	135,380	9.5	1.0	-5.9	Moderate
49-2022	Telecommunications Equipment Installers and Repairers, Except Line Installers	172,700	192,470	210,650	195,680	11.4	9.4	-7.1	Moderate
49-2094	Electrical and Electronics Repairers, Commercial and Industrial Equipment	71,530	81,760	77,780	82,320	14.3	-4.9	5.8	Moderate
49-9051	Electrical Power-Line Installers and Repairers	99,090	96,200	99,140	96,040	-2.9	3.1	-3.1	Moderate
49-9052	Telecommunications Line Installers and Repairers	158,990	168,480	168,260	156,160	6.0	-0.1	-7.2	Moderate
51-2022	Electrical and Electronic Equipment Assemblers	387,430	367,150	302,530	267,030	-5.2	-17.6	-11.7	Moderate
51-2023	Electromechanical Equipment Assemblers	69,830	72,550	63,930	57,500	3.9	-11.9	-10.1	Moderate
51-9141	Semiconductor Processors	42,110	67,000	51,060	43,630	59.1	-23.8	-14.6	Moderate
43-2011,21	Communications Equipment Operators	299,390	295,250	285,160	273,310	-1.4	-3.4	-4.2	Low
43-3021	Billing and Posting Clerks and Machine Operators	551,410	492,040	480,610	491,000	-10.8	-2.3	2.2	Low
43-9011	Computer Operators	198,500	186,460	177,990	172,640	-6.1	-4.5	-3.0	Low
43-9071	Office Machine Operators, Except Computer	101,490	86,380	90,240	93,340	-14.9	4.5	3.4	Low

High: Associate degree, bachelor's degree or work experience plus a bachelor's degree or higher
Moderate: long-term on-the-job training, work experience in a related occupation or post secondary vocational training
Low: short to moderate-term on-the-job training

*The grouping of education and training categories into high, moderate and low requirement levels reflects the author's interpretation of training intensity. BLS classifies occupations into 11 categories that describe education and training needed by most workers to become fully qualified. A description of these education and training categories can be found in the November 2001, Monthly Labor Review.

Source: Estimates derived from Bureau of Labor Statistics Occupational Employment Statistics survey data.

Appendix Table 2.5:
Wages, by IT Occupation, 1999-2002

	Occupation	1999	2000	2001	2002	Percent change 1999-2000	Percent change 2000-2001	Percent change 2001-2002	Education/ training requirement*
	All IT Occupations	**$43,543**	**$47,328**	**$49,549**	**$51,195**	**8.7%**	**4.7%**	**3.3%**	
11-3021	Computer and Information Systems Managers	74,430	80,250	83,890	90,440	7.8	4.5	7.8	High
11-9041	Engineering Managers	81,560	85,450	88,900	95,740	4.8	4.0	7.7	High
15-1011	Computer and Information Scientists, Research	67,180	73,430	76,970	80,520	9.3	4.8	4.6	High
15-1021	Computer Programmers	54,960	60,970	62,890	63,690	10.9	3.1	1.3	High
15-1031	Computer Software Engineers, Applications	65,780	70,300	72,370	73,800	6.9	2.9	2.0	High
15-1032	Computer Software Engineers, Systems Software	66,230	70,890	74,490	75,840	7.0	5.1	1.8	High
15-1041	Computer Support Specialists	39,410	39,680	41,920	42,330	0.7	5.6	1.0	High
15-1051	Computer Systems Analysts	57,920	61,210	63,710	64,900	5.7	4.1	1.9	High
15-1061	Database Administrators	52,550	55,810	58,420	59,090	6.2	4.7	1.2	High
15-1071	Network and Computer Systems Administrators	50,090	53,690	56,440	57,620	7.2	5.1	2.1	High
15-1081	Network Systems and Data Communications Analysts	55,710	57,890	60,300	61,380	3.9	4.2	1.8	High
17-2061	Computer Hardware Engineers	66,960	70,100	74,310	76,150	4.7	6.0	2.5	High
17-2071	Electrical Engineers	61,520	66,320	68,630	70,470	7.8	3.5	2.7	High
17-2072	Electronics Engineers, Except Computer	63,410	66,490	69,710	71,610	4.9	4.8	2.7	High
17-3023	Electrical and Electronic Engineering Technicians	39,390	41,210	43,220	44,220	4.6	4.9	2.3	High
43-9021	Data Entry Keyers	21,070	22,170	22,740	23,190	5.2	2.6	2.0	Moderate
49-2011	Computer, Automated Teller, and Office Machine Repairers	31,290	32,860	34,120	34,800	5.0	3.8	2.0	Moderate
49-2022	Telecommunications Equipment Installers and Repairers, Except Line Installers	41,130	42,520	44,360	45,550	3.4	4.3	2.7	Moderate
49-2094	Electrical and Electronics Repairers, Commercial and Industrial Equipment	36,160	37,190	39,110	40,770	2.8	5.2	4.2	Moderate
49-9051	Electrical Power-Line Installers and Repairers	43,490	44,490	45,840	47,170	2.3	3.0	2.9	Moderate
49-9052	Telecommunications Line Installers and Repairers	35,790	38,050	39,030	39,560	6.3	2.6	1.4	Moderate
51-2022	Electrical and Electronic Equipment Assemblers	21,840	22,950	23,900	24,630	5.1	4.1	3.0	Moderate
51-2023	Electromechanical Equipment Assemblers	23,830	24,560	26,080	26,520	3.1	6.2	1.7	Moderate
51-9141	Semiconductor Processors	27,540	27,170	28,170	29,140	-1.3	3.7	3.4	Moderate
43-2011,21	Communications Equipment Operators	20,970	22,100	23,030	23,220	5.4	4.2	0.8	Low
43-3021	Billing and Posting Clerks and Machine Operators	23,880	25,480	26,340	27,120	6.7	3.4	3.0	Low
43-9011	Computer Operators	28,170	29,430	30,780	31,640	4.5	4.6	2.8	Low
43-9071	Office Machine Operators, Except Computer	21,510	22,400	23,470	23,400	4.1	4.8	-0.3	Low

High: Associate degree, bachelor's degree or work experience plus a bachelor's degree or higher
Moderate: long-term on-the-job training, work experience in a related occupation or post secondary vocational training
Low: short to moderate-term on-the-job training

*The grouping of education and training categories into high, moderate and low requirement levels reflects the author's interpretation of training intensity. BLS classifies occupations into 11 categories that describe education and training needed by most workers to become fully qualified. A description of these education and training categories can be found in the November 2001, Monthly Labor Review.

Source: Estimates derived from Bureau of Labor Statistics Occupational Employment Statistics survey data.

Appendix Table 2.5:
Wages, by IT Occupation, 1999-2002

	Occupation	1999	2000	2001	2002	Percent change 1999-2000	Percent change 2000-2001	Percent change 2001-2002	Education/ training requirement*
	All IT Occupations	**$43,543**	**$47,328**	**$49,549**	**$51,195**	**8.7%**	**4.7%**	**3.3%**	
11-3021	Computer and Information Systems Managers	74,430	80,250	83,890	90,440	7.8	4.5	7.8	High
11-9041	Engineering Managers	81,560	85,450	88,900	95,740	4.8	4.0	7.7	High
15-1011	Computer and Information Scientists, Research	67,180	73,430	76,970	80,520	9.3	4.8	4.6	High
15-1021	Computer Programmers	54,960	60,970	62,890	63,690	10.9	3.1	1.3	High
15-1031	Computer Software Engineers, Applications	65,780	70,300	72,370	73,800	6.9	2.9	2.0	High
15-1032	Computer Software Engineers, Systems Software	66,230	70,890	74,490	75,840	7.0	5.1	1.8	High
15-1041	Computer Support Specialists	39,410	39,680	41,920	42,330	0.7	5.6	1.0	High
15-1051	Computer Systems Analysts	57,920	61,210	63,710	64,900	5.7	4.1	1.9	High
15-1061	Database Administrators	52,550	55,810	58,420	59,090	6.2	4.7	1.2	High
15-1071	Network and Computer Systems Administrators	50,090	53,690	56,440	57,620	7.2	5.1	2.1	High
15-1081	Network Systems and Data Communications Analysts	55,710	57,890	60,300	61,380	3.9	4.2	1.8	High
17-2061	Computer Hardware Engineers	66,960	70,100	74,310	76,150	4.7	6.0	2.5	High
17-2071	Electrical Engineers	61,520	66,320	68,630	70,470	7.8	3.5	2.7	High
17-2072	Electronics Engineers, Except Computer	63,410	66,490	69,710	71,610	4.9	4.8	2.7	High
17-3023	Electrical and Electronic Engineering Technicians	39,390	41,210	43,220	44,220	4.6	4.9	2.3	High
43-9021	Data Entry Keyers	21,070	22,170	22,740	23,190	5.2	2.6	2.0	Moderate
49-2011	Computer, Automated Teller, and Office Machine Repairers	31,290	32,860	34,120	34,800	5.0	3.8	2.0	Moderate
49-2022	Telecommunications Equipment Installers and Repairers, Except Line Installers	41,130	42,520	44,360	45,550	3.4	4.3	2.7	Moderate
49-2094	Electrical and Electronics Repairers, Commercial and Industrial Equipment	36,160	37,190	39,110	40,770	2.8	5.2	4.2	Moderate
49-9051	Electrical Power-Line Installers and Repairers	43,490	44,490	45,840	47,170	2.3	3.0	2.9	Moderate
49-9052	Telecommunications Line Installers and Repairers	35,790	38,050	39,030	39,560	6.3	2.6	1.4	Moderate
51-2022	Electrical and Electronic Equipment Assemblers	21,840	22,950	23,900	24,630	5.1	4.1	3.0	Moderate
51-2023	Electromechanical Equipment Assemblers	23,830	24,560	26,080	26,520	3.1	6.2	1.7	Moderate
51-9141	Semiconductor Processors	27,540	27,170	28,170	29,140	-1.3	3.7	3.4	Moderate
43-2011,21	Communications Equipment Operators	20,970	22,100	23,030	23,220	5.4	4.2	0.8	Low
43-3021	Billing and Posting Clerks and Machine Operators	23,880	25,480	26,340	27,120	6.7	3.4	3.0	Low
43-9011	Computer Operators	28,170	29,430	30,780	31,640	4.5	4.6	2.8	Low
43-9071	Office Machine Operators, Except Computer	21,510	22,400	23,470	23,400	4.1	4.8	-0.3	Low

High: Associate degree, bachelor's degree or work experience plus a bachelor's degree or higher
Moderate: long-term on-the-job training, work experience in a related occupation or post secondary vocational training
Low: short to moderate-term on-the-job training

*The grouping of education and training categories into high, moderate and low requirement levels reflects the author's
interpretation of training intensity. BLS classifies occupations into 11 categories that describe education and training
needed by most workers to become fully qualified. A description of these education and training categories can be
found in the November 2001, Monthly Labor Review.

Source: Estimates derived from Bureau of Labor Statistics Occupational Employment Statistics survey data.

Appendix Table 2.6:
Information Technology-Related Occupations

Occupation	Description of Duties
Engineering managers	Plan, direct, or coordinate activities in such fields as architecture and engineering or research and development in these fields.
Computer and information systems managers	Plan, direct, or coordinate activities in such fields as electronic data processing, information systems, systems analysis, and computer programming.
Computer and information scientists, research	Conduct research into fundamental computer and information science as theorists, designers, or inventors. Solve or develop solutions to problems in the field of computer hardware and software.
Computer programmers	Convert statements of problems and procedures to flow charts for coding into computer language. Develop and write programs to store, locate, and retrieve data and information. May program web sites.
Computer software engineers, applications	Develop, create, and modify general computer applications software or specialized utility programs. Analyze user needs and develop software solutions. Design software or customize software for client use. May analyze and design databases within an application area.
Computer software engineers, systems software	Research, design, develop, and test operating systems-level software, compilers, and network distribution software for a variety of computing applications. (medical, industrial, military, general) Set operational specifications and formulate and analyze software requirements.
Computer support specialists	Provide technical assistance to computer system users. Answer questions or resolve computer problems for clients in person or via telephone. May provide assistance in the use of computer hardware and software, including printing, installation, word processing, electronic mail, and operating systems.
Computer systems analysts	Analyze science, engineering, business, and all other data processing problems for application to electronic data processing systems. Analyze user requirements, procedures, and problems to automate or improve existing systems. May analyze or recommend commercially available software.
Database administrators	Coordinate, test and implement changes to computer databases using database management systems. May plan, coordinate, and implement security measures to safeguard computer databases.
Network and computer systems administrators	Install, configure, support, monitor and maintain an organization's local area network (LAN), wide area network (WAN), and Internet system. May supervise network support and client server specialists and plan, coordinate, and implement network security measures.
Network systems and data communications analysts	Analyze, design, test, and evaluate network systems, such as local area networks (LAN), wide area networks (WAN), Internet, intranet, and other data communications systems. Research and recommend network and data communications hardware and software. Include telecommunications specialists who deal with the interfacing of computer and communications equipment. May supervise computer programmers.

Computer hardware engineers	Research, design, develop, and test computer or computer-related equipment for commercial, industrial, military, or scientific use. May supervise the manufacturing and installation of computer or computer-related equipment and components.
Electrical engineers	Design, develop, test, or supervise the manufacturing and installation of electrical equipment, components, or systems for commercial, industrial, military, or scientific use.
Electronics engineers, except computer	Research, design, develop, and test electronic components and systems for commercial, industrial, military, or scientific use. Design electronic circuits and components for use in fields such as telecommunications, aerospace guidance and propulsion control, acoustics, or instruments and controls.

Appendix Table 2.6
Information Technology Related Occupations contd.

Occupation	Description of Duties
Electrical and electronic engineering technicians	Apply electrical and electronic theory, usually under the direction of engineering staff, to design, build, repair, calibrate, and modify electrical components, circuitry, controls, and machinery for subsequent evaluation and use by engineering design staff.
Data entry keyers	Operate data entry device, such as keyboard or photo composing perforator. Duties may include verifying data and preparing materials for printing.
Computer, automated teller, and office machine repairers	Repair, maintain, or install computers, word processing systems, automated teller machines, and electronic office machines, such as duplicating and fax machines.
Telecommunications equipment installers and repairers, except line installers	Set-up, rearrange, or remove switching and dialing equipment used in central offices. Install and repair telephones and other communication equipment.
Electrical and electronics repairers, commercial and industrial equipment	Repair, test, adjust, or install electronic equipment, such as industrial controls, transmitters, and antennas.
Electrical power-line installers and repairers	Install or repair cables or wires used in electrical power or distribution systems. May erect poles and light or heavy duty transmission towers.
Telecommunications line installers and repairers	String and repair telephone and television cable, including fiber optics and other equipment for transmitting messages or television programming.
Electrical and electronic equipment assemblers	Assemble or modify electrical or electronic equipment, such as computers, test equipment telemetering systems, electric motors, and batteries.
Electromechanical equipment assemblers	Assemble or modify electromechanical equipment or devices, such as servomechanisms, gyros, dynamometers, magnetic drums, tape drives, brakes, control linkage, actuators, and appliances.

Semiconductor processors	Perform any or all of the functions in the manufacture of electronic semiconductors, including loading semiconductor material into furnace; sawing formed ingots into segments; cleaning, polishing, and loading wafers into series of special purpose furnaces, chemical baths, and equipment used to form circuitry.
Communications equipment operators	Provide information by accessing alphabetical and geographical directories. Assist customers with special billing requests, such as charges to a third party and credits or refunds for incorrectly dialed numbers or bad connections. Operate telephone business systems equipment or switchboards to relay incoming, outgoing, and interoffice calls.
Billing and posting clerks and machine operators	Compile, compute, and record billing, accounting, statistical, and other numerical data for billing purposes. Prepare billing invoices for services rendered or for delivery or shipment of goods.
Computer operators	Monitor and control computer and peripheral electronic data processing equipment to process business, scientific, engineering, and other data according to operating instructions. May set controls on computer and peripheral devices. Monitor and respond to operating and error messages.

Source: Bureau of Labor Statistics.