High Technology

Overview
Utah's technology sector continued to lose jobs during 2004, extending a decline that began in 2001. From January 2001 through June 2004 Utah's technology sector lost 9,492 jobs - a drop of 14.3%. However, these losses began to abate in 2004. In 2003, 14 industries posted job losses, seven of which were more than 100 workers. In 2004, ten industries posted job losses, however, two of these (computer and peripheral equipment and motion picture and video production) had losses of more than 100 workers. Five industries reported job growth of more than 100 workers.

2004 Summary
Utah's technology sector experienced deep and persistent contractions which began in January 2001 and continued through the first quarter of 2004. Since January 2001 Utah's technology sector has lost 9,492 jobs, a drop of 14.3%. However, employment declines abated in 2004, after a severe cut in January. In 2004, an estimated 56,021 people were employed in the technology sector, or 5% of the state's nonagricultural workers.

Preliminary data for 2004 show that the technology sector may have lost an additional 566 jobs during the first six months of the year. However, the rate at which technology jobs were declining appears to have slowed in the last two years. Average employment in the technology sector in 2003 was 1.8% lower than in 2002, and the first six months of 2004 was just 1.0% lower than average employment during the same period in 2003.

Major Industry Segment Analysis
Utah's technology sector is highly concentrated in three industry segments - computer systems design, medical equipment, and aerospace. When combined, employment in these industry segments accounts for over 44% of all technology employment in Utah. Other important, but smaller segments of the state's technology base include engineering services, software, and companies involved in scientific research.

A comparison of year-over average annual employment for 2003 and the first six months of 2004 show that exactly half of the industry segments posted job losses. This is an improvement from last year when 70% of the sectors reported job losses. In 2004, the largest losses were in the computer and peripheral equipment sector and the motion picture and video production. More than 1,000 jobs were lost in these two industries alone. However, these were the only two industries that posted losses of more than 100 workers, again an improvement from the previous year. Five industries reported increases of more than 100 workers. The largest of which was the semiconductor and electronic components industry which added 210 new positions. The other four industries include: communication equipment, engineering services, medical equipment and supplies, and the carbon and graphite product manufacturing sector.

Computer Systems Design
The largest technology segment (as measured by employment) is computer systems design, which despite its jobs losses, still accounted for over 19% of the state's technology workers - an average of about 10,700 people. This industry includes companies that provide expertise in the field of information technologies and is characterized by a large number of small firms - approximately 1,300 companies make up this industry segment. The largest employers include 3M Company and Unisys-both companies employ fewer than 500 people.

Employment in this sector of 10,732, averaged over the first six months of 2004, is slightly lower than average annual employment reported for 2003 of 10,796. However, the stability of the sector, as conveyed by averages may be misleading. After a large decrease, this sector employed 10,606 in January of 2004, employment in the industry then fluctuated until it reached the reported levels.

Medical Equipment
Medical equipment manufacturing posted modest gains during the first six months of 2004 with an average employment base of about 7,700 (an increase of 108 workers over the 2003 annual average). This industry has been an important and relatively stable component of the technology sector for many years. This is in part due to the fact that many of these companies produce products that are in high demand and meet the needs of aging baby boomers.

Becton Dickinson and Fresenius, USA, are the two largest employers in this sector. Another large medical equipment employer is South Jordan based Merit Medical, which is a manufacturer and marketer of proprietary disposable products used primarily in cardiology and radiology procedures. The company was ranked on the 2004 Forbes magazine list of "200 Best Small Companies in America."

Aerospace Products
Utah's aerospace industry has undergone a significant transformation over the past decade. Most of Utah's aerospace companies downsized during the late 1990s by restructuring their core business activities. While they were once the largest component of the technology sector, aerospace companies now employ about 6,400 people. Despite this, they still represents over 11% of high technology employment, and experienced a very modest increase (1.1%) in employment in 2004.

Significant Issues
In Utah the recession did not see many high technology establishments go out of business. Although the employment counts fell, the number of firms actually increased. In 2000, there was an average of 3,201 firms. Since that time, five sectors experienced a decrease in the number of firms. The rest of the sectors experienced growth or zero growth, increasing the total number of firms to 3,432 in 2003. This accounts for an increase of 232 establishments, or a 7.2% increase.

High technology jobs pay above the Utah average. Before the job contractions in December 2002, they paid 75.4% higher than the Utah average. In 2004, high technology payrolls accounted for 9.2% of Utah's total payrolls. This is a decline from 2000, when it represented 10.6%. However, it is still a significant proportion considering that high technology jobs make up about 5% of nonagricultural employment in Utah.

Conclusion
The downturn in Utah's technology sector continued through the first quarter of 2004, but abated after a severe cut in January. While the hey-day of the technology sector - the fast pace of new technology startups, billion dollar IPO's, and dizzying returns on investments - will most likely not be repeated, the development of new products and technologies is still the backbone of Utah's economic growth. The sector will eventually rebound as the overall economy improves, but it may take several years before employment surpasses former peak levels.

Table 77
Technology Employment by Detailed Industry: Annual Averages

Sector	NAICS Code	Average Annual Employment 2000	2001	2002	2003	2002-2003 Net Change
In-Vitro Diagnostic Substances	325413	18	22	23	23	0
Optical Instrument and Lens Manufacturing	333314	174	170	158	154	-4
Computer and Peripheral Equipment	3341	3,575	3,181	1,540	1,260	-280
Communication Equipment	3342	2,286	2,393	2,370	2,432	63
Semiconductor and Electronic Components	3344	4,110	4,215	3,315	2,888	-427
Navigational, Measuring and Electromedical Products	3345	3,211	3,242	3,109	3,182	73
Carbon and Graphite Product Manufacturing	335991	398	368	341	324	-17
Aerospace Products and Parts Manufacturing	3364	7,465	7,201	6,634	6,314	-320
Medical Equipment and Supplies	3391	7,530	7,479	7,575	7,593	18
Software	5112	5,819	5,348	4,845	4,751	-94
Motion Picture and Video Production	51211	2,685	2,643	2,478	2,346	-132
Post Production Services	51219	42	42	49	28	-21
Wireless Telecommunications Carriers	5172	1,480	1,179	879	701	-178
Satellite Telecommunications	5174	100	96	90	79	-11
Other Telecommunications	5179	25	98	119	82	-38
Internet Service Providers	5181	3,476	3,276	3,016	2,974	-42
Engineering Services	54133	5,502	5,767	5,579	5,849	270
Testing Laboratories	54138	1,182	1,214	1,152	1,173	20
Computer Systems Design	5415	13,028	12,491	10,521	10,796	275
Scientific Research	54171	2,847	3,340	3,815	3,639	-176
Total		64,951	63,766	57,609	56,588	-1,022

Note: NAICS stands for North American Industry Classification System.
Source: Utah Department of Workforce Services

Table 78
Technology Employment by Detailed Industry: Comparison of 2003 and Six Month Average of 2004

Sector	NAICS Code	Average Employment 2003	2004	2003-2004 Net Change
In-Vitro Diagnostic Substances	325413	23	29	6
Optical Instrument and Lens Manufacturing	333314	154	135	-19
Computer and Peripheral Equipment	3341	1,260	701	-559
Communication Equipment	3342	2,432	2,597	165
Semiconductor and Electronic Components	3344	2,888	3,098	210
Navigational, Measuring and Electromedical Products	3345	3,182	3,100	-82
Carbon and Graphite Product Manufacturing	335991	324	427	103
Aerospace Products and Parts Manufacturing	3364	6,314	6,385	72
Medical Equipment and Supplies	3391	7,593	7,701	108
Software	5112	4,751	4,701	-50
Motion Picture and Video Production	51211	2,346	1,850	-496
Post Production Services	51219	28	23	-5
Wireless Telecommunications Carriers	5172	701	705	4
Satellite Telecommunications	5174	79	83	4
Other Telecommunications	5179	82	73	-9
Internet Service Providers	5181	2,974	2,999	25
Engineering Services	54133	5,849	5,998	149
Testing Laboratories	54138	1,173	1,112	-60
Computer Systems Design	5415	10,796	10,732	-63
Scientific Research	54171	3,639	3,572	-67
Total		56,588	56,021	-566

Note: NAICS stands for North American Industry Classification System.
Source: Utah Department of Workforce Services

Table 79
Technology Employment by Detailed Industry: Actual January 2001 and June 2004

Sector	NAICS Code	Actual Employment January 2001	June 2004	2003-2004 Net Change
In-Vitro Diagnostic Substances	325413	17	29	12
Optical Instrument and Lens Manufacturing	333314	186	141	-45
Computer and Peripheral Equipment	3341	3,850	654	-3,196
Communication Equipment	3342	2,385	2,721	336
Semiconductor and Electronic Components	3344	4,651	3,155	-1,496
Navigational, Measuring and Electromedical Products	3345	3,284	3,110	-174
Carbon and Graphite Product Manufacturing	335991	365	440	75
Aerospace Products and Parts Manufacturing	3364	7,409	6,498	-911
Medical Equipment and Supplies	3391	7,409	7,894	485
Software	5112	5,531	4,649	-882
Motion Picture and Video Production	51211	2,459	1,938	-521
Post Production Services	51219	45	25	-20
Wireless Telecommunications Carriers	5172	1,380	713	-667
Satellite Telecommunications	5174	87	89	2
Other Telecommunications	5179	91	77	-14
Internet Service Providers	5181	3,708	3,076	-632
Engineering Services	54133	5,611	6,195	584
Testing Laboratories	54138	1,189	1,030	-159
Computer Systems Design	5415	13,626	10,770	-2,856
Scientific Research	54171	3,083	3,670	587
Total		66,366	56,874	-9,492

Note: NAICS stands for North American Industry Classification System.
Source: Utah Department of Workforce Services

Table 80
High Technology Establishments in Utah: Annual Averages

Sector	NAICS Code	Average Number of Firms 2000	2001	2002	2003	2000-2003 Net Change
In-Vitro Diagnostic Substances	325413	5	5	5	5	0
Optical Instrument and Lens Manufacturing	333314	7	8	7	7	0
Computer and Peripheral Equipment	3341	26	24	25	23	-3
Communication Equipment	3342	33	36	32	28	-5
Semiconductor and Electronic Components	3344	56	59	56	52	-4
Navigational, Measuring and Electromedical Products	3345	54	57	59	59	5
Carbon and Graphite Product Manufacturing	335991	4	4	2	2	-2
Aerospace Products and Parts Manufacturing	3364	48	45	41	44	-4
Medical Equipment and Supplies	3391	182	187	185	182	0
Software	5112	153	150	156	158	5
Motion Picture and Video Production	51211	181	184	184	185	5
Post Production Services	51219	14	19	23	22	8
Wireless Telecommunications Carriers	5172	74	82	92	81	7
Satellite Telecommunications	5174	10	11	15	13	3
Other Telecommunications	5179	5	6	7	7	3
Internet Service Providers	5181	209	265	243	236	27
Engineering Services	54133	562	577	597	626	65
Testing Laboratories	54138	101	105	107	104	3
Computer Systems Design	5415	1,264	1,365	1,357	1,354	90
Scientific Research	54171	216	237	250	245	29
Total		3,201	3,422	3,440	3,432	232

Note: NAICS stands for North American Industry Classification System.
Source: Utah Department of Workforce Services

Table 81
High Technology Total Wages in Utah: January 2000 thru June 2004p (Millions of Dollars)

Sector	NAICS Code	Total Wages 2000	2001	2002	2003	2004p
In-Vitro Diagnostic Substances	325413	$ 1.1	$ 1.0	$ 1.0	$ 1.1	1.2
Optical Instrument and Lens Manufacturing	333314	4.0	4.4	4.2	4.5	3.8
Computer and Peripheral Equipment	3341	185.4	184.0	111.6	91.4	45.0
Communication Equipment	3342	152.3	152.8	153.3	158.7	177.1
Semiconductor and Electronic Components	3344	149.9	148.4	124.4	114.1	125.2
Navigational, Measuring and Electromedical Products	3345	162.8	165.6	155.4	172.2	169.0
Carbon and Graphite Product Manufacturing	335991	19.2	18.5	17.7	18.2	21.7
Aerospace Products and Parts Manufacturing	3364	403.6	416.6	399.3	380.3	403.5
Medical Equipment and Supplies	3391	247.5	257.2	273.8	295.5	308.9
Software	5112	463.8	381.4	351.0	346.2	355.4
Motion Picture and Video Production	51211	58.7	66.1	52.7	52.7	43.0
Post Production Services	51219	0.8	1.0	0.4	0.5	0.4
Wireless Telecommunications Carriers	5172	65.1	56.6	52.7	42.6	43.9
Satellite Telecommunications	5174	4.1	3.4	3.2	3.2	3.1
Other Telecommunications	5179	1.3	3.9	4.7	3.3	3.0
Internet Service Providers	5181	149.9	150.1	118.9	118.2	123.9
Engineering Services	54133	260.8	283.9	290.1	302.8	305.3
Testing Laboratories	54138	42.1	43.2	42.1	44.0	45.8
Computer Systems Design	5415	753.6	739.6	647.4	688.3	686.9
Scientific Research	54171	159.4	185.8	198.6	196.4	211.8
Total High Technology Wages		3,285.2	3,263.4	3,002.4	3,034.2	3,078.0
Utah State Wide Wages		30,972.6	32,059.7	32,337.3	32,885.0	33,574.1
High Technology Wages as Percent of Total		10.6%	10.2%	9.3%	9.2%	9.2%

Note: Wages for 2004 are preliminary based on the first two quarters only.
Note: NAICS stands for North American Industry Classification System.
Source: Utah Department of Workforce Services