

New Hampshire Economic Conditions

January 2011

High Tech in New Hampshire

The U.S. Department of Commerce's Congressional Office of Technology Assessment described high tech firms as those "that are engaged in the design, development, and introduction of new products and innovative manufacturing processes, or both, through the systematic application of scientific and technical knowledge." The office went on to discuss the use of state-of-the-art techniques and the amount invested in research and development.¹ Given that parameter, 38 industries, mostly at the Industry Group level (a NAICS designation for those industries defined at a 4-digit level)² were selected for inclusion under the high tech umbrella. The selected industries were nearly all in the *Manufacturing, Information, or Professional and technical services* sectors.

In 2009 New Hampshire had 4,043 firms employing 50,501 people in those industries designated as high tech. This was 4,167 fewer employees than in 2008. This decline followed two years of gains: 1,170 in 2008 and 450 in 2007. The 2009 drop was the largest one-year decline since the State lost 9,407 high tech jobs in 2002. Like manufacturing, high tech employment has been on a downward cycle for most of the last decade. During the 1990s high tech employment saw a steady rise and exceeded 60,000 at the turn of the millennium. In 2000 employment peaked with over 65,000 people working in high tech in New Hampshire. Two years later employment had dipped by over 11,000 jobs.

High tech employment is quite valuable because of the wages paid in the included industries. With 8.3 percent of total covered employment in New Hampshire in 2009, high tech companies offered 14.4 percent of the state's wages. Total wages paid by high tech companies in 2009 exceeded \$3.9 billion. More than two-thirds of that total was in two subsectors: *Professional, Scientific, and Technical Services* (\$1.39 billion) and *Computer and Electronic Product Manufacturing* (\$1.30 billion). Total wages decreased by \$362 million in 2009 from 2008. Over the past two decades, losses happened only twice and they were much smaller in scope. In 2003 there was a \$63.7 million loss and in 1991 it was \$15.2 million.

¹ Hecker, Daniel. "High-technology employment: a broader view." Monthly Labor Review, June 1999. Bureau of Labor Statistics.

² For an explanation of NAICS classification, go to www.census.gov/epcd/www/naicsdev.htm

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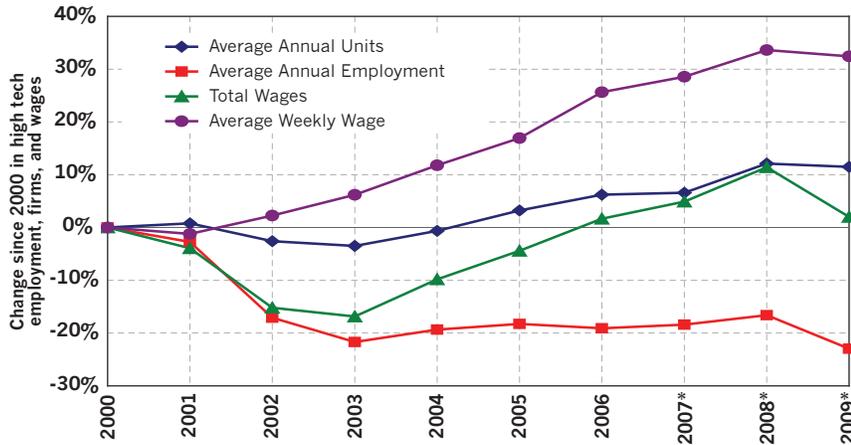
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High Tech by Sector

	Units	Employment	Total Wages	Average Weekly Wage
Total	4,043	50,501	\$3,925,769,391	\$1,495
Manufacturing	598	29,297	\$2,112,278,838	\$1,387
Information	196	3,609	\$377,470,375	\$2,011
Professional and technical services	3,248	17,594	\$1,436,020,178	\$1,570

Source: New Hampshire Employment Security, Economic and Labor Market Information Bureau based on Department of Commerce definition

Despite falling employment, wages and firms have increased since 2000 in New Hampshire's High Tech Industries



*Not strictly comparable due to 2007 NAICS revision

Source: New Hampshire Employment Security, Economic and Labor Market Information Bureau based on Department of Commerce definition

The average weekly wage within high tech for 2009 was \$1,495. As with employment and total wages, the average weekly wage failed to reach the 2008 level as it fell \$14 shy of the 2008 figure. The only other recorded loss since 1990 was in 2001 which likewise came up \$14 shy of the 2000 level. The highest average weekly wage paid out was in software publishing where 2,871 employees averaged over

\$2,200 per week. No high tech industry had an average weekly wage below the New Hampshire average for all employment of \$864.

The 598 high tech manufacturers offered 29,297 jobs and paid out wages of \$2,112.3 million. This brought the average weekly wage to \$1,387. The Professional and technical service companies generally employ fewer

workers than the manufacturers. There are more than five times as many units falling under the *Professional and technical services* umbrella than there are manufacturers but they have only 60 percent of the number of jobs. Their 3,248 firms employed 17,594 people. Earnings totaled \$1,436.0 million bringing the average weekly wage to \$1,570. Two industry groups in the Information sector are considered high tech – software publishers and data processors. These 196 firms employ 3,609 people and paid \$377.5 million in wages. This made for a quite lucrative average weekly wage of \$2,011. Since 1990, while high tech manufacturing has lost over 16,000 jobs, high tech information employment has added nearly 1,900 jobs and Professional and technical services employment has more than doubled, adding almost 9,500 jobs.

There are two indications that high tech may begin an upward curve again. Exports thus far in 2010 are increasing to levels not seen before. Many of those products are computer or electronic related. The other indicator is the rising level of defense contracts. Both bode well for high tech employment in New Hampshire.

Alternate Definition of High Tech

There are multiple definitions of high tech, each using determinants which differ slightly. The Bureau of Labor Statistics (BLS) says: “high-technology firms typically use state-of-the-art techniques and, in terms of quantifiable resources, devote a ‘high’ propor-

tion of expenditures to research and development (R&D) and employ a ‘high’ proportion of scientific, technical, and engineering personnel.”³

³ Hecker, Daniel E. “High-technology employment: a NAICS-based update.” Monthly Labor Review, July 2005. Bureau of Labor Statistics. Accessed 8 Dec. 2010. <www.bls.gov/opub/mlr/2005/07/art6full.pdf>.

In 2002 BLS looked at all industries and ranked them by the percent of employment in science, engineering, and technician (technology-oriented) occupations. Across all industries, the average was 4.9 percent. The Bureau then identified industries with concentrations of 10 percent or more and divided them into three levels: Level I with more than 25 percent concentration, Level II with between 15 and 25 percent, and Level III with 10 to 15 percent. Of the 46 industries qualifying, 14 were ranked in Level I, 12 in Level II, and 20 in Level III.

2009 New Hampshire High Tech Employment and Wages Based on the BLS Definition

	Level I	Level II	Level III
Average Weekly Wage	\$1,614	\$1,519	\$1,390
Average Annual Employment	34,852	12,524	14,801

The BLS definition of Level I was affected slightly by the NAICS code revision of 2007. The revision did away with the Internet publishing and broadcasting industry (5161) and the Internet service providers and web search portals industry (5181). Orga-

nizations identified with these codes became part of other existing industries. Some of those in 5181 are now assigned to another Level I industry, Other telecommunications (5179).

Below is a table of Level I high tech industries in New Hampshire in 2009.

Martin Capodice

2009 New Hampshire Annual Averages of High Tech Employment, Level I Industries

NAICS Code	Industry	Units	Employment	Average Weekly Wage	Total Wages
3254	Pharmaceutical and medicine manufacturing	10	898	\$1,362.66	\$63,625,065
3341	Computer and peripheral equipment manufacturing	30	1,577	\$2,084.36	\$170,935,246
3342	Communications equipment manufacturing	28	953	\$1,944.75	\$96,390,879
3344	Semiconductor and electronic component manufacturing	131	5,196	\$1,058.97	\$286,121,615
3345	Electronic instrument manufacturing	93	8,117	\$1,740.12	\$734,439,704
3364	Aerospace product and parts manufacturing	11	1,113	\$1,370.78	\$79,347,123
5112	Software publishers	105	2,871	\$2,208.64	\$329,712,515
5182	Data Processing and Related Services	91	739	\$1,243.49	\$47,757,860
5179	Other telecommunications	47	451	\$1,301.13	\$30,497,155
5413	Architectural and engineering services	722	4,807	\$1,375.13	\$343,720,156
5415	Computer systems design and related services	1,339	6,653	\$1,738.28	\$601,407,686
5417	Scientific research and development services	140	1,478	\$1,842.91	\$141,631,073
Level I		2,747	34,853	\$1,614.24	\$2,925,586,077