

## **Computer Systems Analysts, Database Administrators, and Computer Scientists**

### **Significant Points**

- Education requirements range from a 2-year degree to a graduate degree.
- Employment is expected to increase much faster than the average as organizations continue to adopt increasingly sophisticated technologies.
- Job prospects are favorable.

### **Nature of the Work**

The rapid spread of computers and information technology has generated a need for highly trained workers to design and develop new hardware and software systems and to incorporate new technologies. These workers—computer systems analysts, database administrators, and computer scientists—include a wide range of computer specialists. Job tasks and occupational titles used to describe these workers evolve rapidly, reflecting new areas of specialization or changes in technology, as well as the preferences and practices of employers.

### **Employment**

Computer systems analysts, database administrators, and computer scientists held about 979,000 jobs in 2002; including about 89,000 who were self-employed. Employment was distributed among the following detailed occupations:

Computer systems analysts	468,000
Network systems and data communications analysts	186,000
Database administrators	110,000
Computer and information scientists, research	23,000
All other computer specialists	192,000

Although they are increasingly employed in every sector of the economy, the greatest concentration of these workers is in the computer systems design and related services industry. Firms in this industry provide services related to the commercial use of computers on a contract basis, including custom computer programming services; computer systems integration design services; computer facilities management services, including computer systems or data-processing facilities support services for clients; and other computer-related services, such as disaster recovery services and software installation. Many computer systems analysts, database administrators, and computer scientists are employed by Internet service providers, web search portals, and data-processing, hosting, and related services firms. Others work for government, manufacturers

### Job Outlook

Computer systems analysts, database administrators, and computer scientists are expected to be among the fastest growing occupations through 2012. Employment of these computer specialists is expected to [grow much faster than the average](#) for all occupations as organizations continue to adopt and integrate increasingly sophisticated technologies. Job increases will be driven by very rapid growth in computer system design and related services, which is projected to be one of the fastest-growing industries in the U.S. economy. In addition, many job openings will arise annually from the need to replace workers who move into managerial positions or other occupations or who leave the labor force. Job growth will not be as rapid as growth during the previous decade, however, as the information technology sector begins to mature and as routine work is increasingly outsourced overseas.

Despite the recent economic downturn among information technology firms, workers in the occupation should still enjoy favorable job prospects. The demand for networking to facilitate the sharing of information, the expansion of client-server environments, and the need for computer specialists to use their knowledge and skills in a problem-solving capacity will be major factors in the rising demand for computer systems analysts, database administrators, and computer scientists. Moreover, falling prices of computer hardware and software should continue to induce more businesses to expand their computerized operations and integrate new technologies into them. In order to maintain a competitive edge and operate more efficiently, firms will keep demanding computer specialists who are knowledgeable about the latest technologies and are able to apply them to meet the needs of businesses.

Increasingly, more sophisticated and complex technology is being implemented across all organizations, which should fuel the demand for these computer occupations. There is a growing demand for system analysts to help firms maximize their efficiency with available technology. Expansion of electronic commerce—doing business on the Internet—and the continuing need to build and maintain databases that store critical information on customers, inventory, and projects are fueling demand for database administrators familiar with the latest technology. Also, the increasing importance being placed on “cybersecurity”—the protection of electronic information—will result in a need for workers skilled in information security.

### Earnings

Median annual **earnings** of computer systems analysts were \$62,890 in 2002. The middle 50 percent earned between \$49,500 and \$78,350 a year. The lowest 10 percent earned less than \$39,270, and the highest 10 percent earned more than \$93,400. Median annual earnings in the industries employing the largest numbers of computer systems analysts in 2002 were as follows: