



Science Research Laboratory, Inc.

LOCATION: Somerville, MA

EMPLOYEES: 20

SALES AND INVESTMENT TO DATE:

\$761,796,321

COMPANY BACKGROUND

Science Research Laboratory, Inc. (SRL) is a high technology research and development corporation founded in 1983 by Drs. Jonah Jacob and Joseph Mangano, experts in laser technology and plasma science. The company's primary objective is to develop commercial products based upon research programs conducted for the United States government. SRL currently employs 20 individuals, more than half of who are scientists holding doctorate degrees from some of the world's most distinguished universities. This talented group of researchers gives the company a broad technical base, which has resulted in the development of a wide spectrum of technologies with applications in both the government and commercial sectors.

INNOVATIVE TECHNOLOGY DEVELOPED

Under four DoD and DOE SBIR awards between 1989 and 1993, Science Research Laboratory, Inc. (SRL) of Somerville, Massachusetts developed a cluster of solid-state pulsed power technologies that made excimer lasers, for the first time, a commercially-viable tool for the DUV lithography now used in writing current-generation integrated circuits onto computer chips. Specifically, these SBIR-developed technologies:

- Eliminated missing laser pulses observed with the older ("thyatron switch") technology, thereby stabilizing the laser power, improving dose control to the semiconductor wafer, and greatly improving chip yield; and
- Increased the lifespan of the laser driver by a factor of 100 and the lifetime of the laser head by a factor of 10-20, thereby reducing the annual maintenance costs of the laser fivefold.

The use of excimer lasers has enabled a reduction in the critical dimensions of the circuits from 0.35 microns to 0.25 microns with the existing KrF laser technology, and will ultimately lead to critical dimensions of below 0.1 microns with the new ArF and F2 laser technology. The result has been a significant increase in the computing power of virtually every military and commercial system developed in recent years.

DoD IMPLEMENTATION AND COMMERCIALIZATION SUMMARY

SRL commercialized these technologies by licensing Cymer, Inc., which went public in 1996 in part based on these technologies. As a direct result of these technologies, Cymer now produces and sells approximately \$250 million annually in excimer lasers to Canon, Nikon, and ASML for use in chip production around the world and has a market share of over 80%.

CONTACT INFORMATION

<http://www.srl.com>