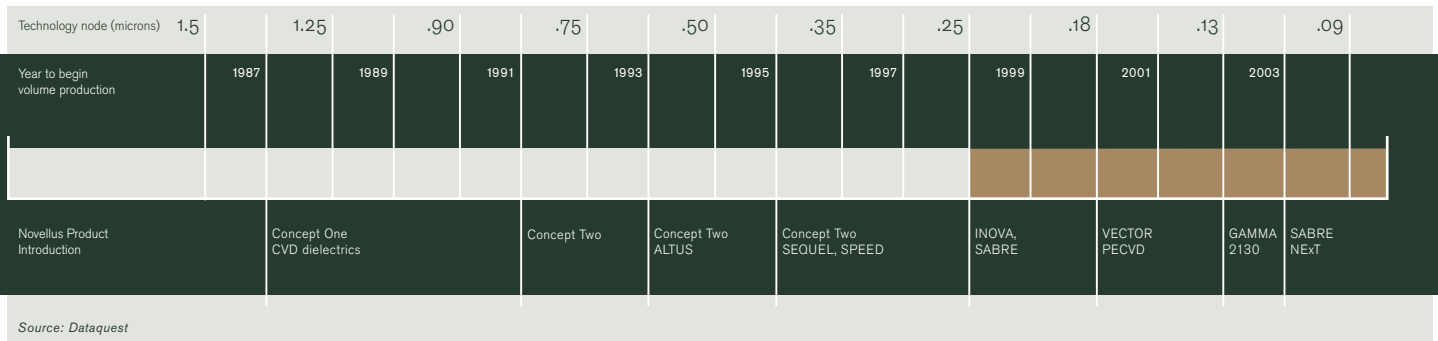
0.150
0.130

NOVELLUS SYSTEMS | **2003 AR** REDEFINING PRODUCTIVITY IN NANOELECTRONICS MANUFACTURING

0.090
0.065
0.045

How small can small go?

In the nearly 40 years since Moore's Law set the ground rules for the semiconductor industry, the density of the circuitry on an individual chip has continued to double every 18 months. That means more transistors, more wiring—and more complexity. And that, in turn, requires smaller and smaller geometries to manufacture a leading-edge semiconductor device. As our timeline illustrates, since Novellus' founding in 1984, the march of miniaturization has continued on, creating geometries that today are 1/1000th the width of a human hair.



Source: Dataquest

Novellus Systems Inc. is a leading supplier of thin film deposition, surface preparation and chemical mechanical planarization equipment used in the manufacture of today's advanced integrated circuits. We deliver innovative products and technologies that provide the world's largest semiconductor manufacturers with superior productivity at the lowest possible cost.

Founded in 1984 and headquartered in San Jose, California, we maintain subsidiaries throughout the United States, Europe and the Pacific Rim. We are an S&P 500 company and a component of the Nasdaq-100 Index. Our stock is traded on the Nasdaq stock exchange under the symbol NVLS.

www.novellus.com

AS SEMICONDUCTOR DEVICES continue to pack more circuitry onto a single piece of silicon, the basic laws of physics are being challenged. A decade ago, sub-micron geometries (< 1.0 micron) represented the leading edge of chip manufacturing; today, the industry is focused on sub-.10 micron line widths.

That's a reduction in size of 10x. In just ten years.

Below 0.10 micron, we enter the realm of nanoelectronics. This is the place where chipmakers must venture to remain competitive, to provide value to their customers. This is the place where challenge and opportunity abound. And this is the place where Novellus can help make a real difference as the era of nanoelectronics manufacturing gathers momentum.

Selected Consolidated Financial Data

Quarterly Financial Data (In thousands, except per share data)

	Year ended December 31, 2003			
	1st Quarter	2nd Quarter	3rd Quarter[1]	4th Quarter
Net sales	$ 238,410	$ 239,050	$ 221,099	$ 226,511
Gross profit	$ 109,814	$ 105,322	$ 58,776	$ 106,088
Net income (loss)	$ 11,872	$ 7,430	$ (97,568)	$ 10,452
Diluted net income (loss) per share	$ 0.08	$ 0.05	$ (0.64)	$ 0.07
Shares used in diluted per share calculations	152,229	153,034	151,280	156,580

	Year ended December 31, 2002			
	1st Quarter[2]	2nd Quarter	3rd Quarter[3]	4th Quarter[4]
Net sales	$ 169,679	$ 222,147	$ 230,495	$ 217,637
Gross profit	$ 71,530	$ 101,564	$ 109,382	$ 96,047
Net income	$ 3,836	$ 12,013	$ 4,083	$ 2,988
Diluted net income per share	$ 0.03	$ 0.08	$ 0.03	$ 0.02
Shares used in diluted per share calculations	150,624	151,053	146,094	147,219

1 Third quarter 2003 results include $62.5 million of pre-tax restructuring and other charges and a non-cash charge of $62.8 million, net of tax, as a cumulative effect of a change in accounting principle from the consolidation of properties previously accounted for as synthetic leases.

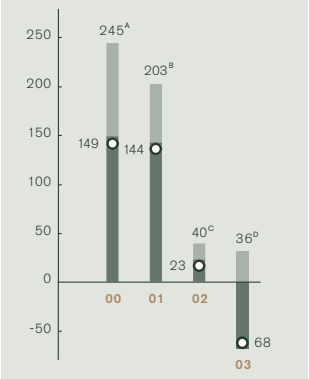
2 The first quarter 2002 results include a $9.0 million pre-tax net benefit, which reflects the combined effect of a benefit of $7.7 million for recovery of a receivable previously written off and a $4.6 million gain on sale of an equity investment, offset by $3.3 million of severance charges.

3 The third quarter 2002 results include a $17.0 million pre-tax charge for the write-off of debt issuance costs related to the retirement of the $880.0 million Liquid Yield Option Notes.

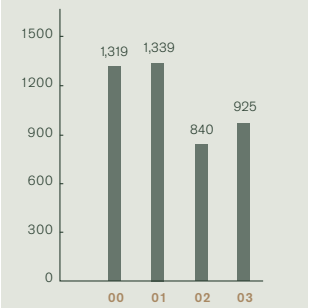
4 The fourth quarter 2002 results include $3.2 million of pre-tax restructuring and severance charges and an $11.5 million net loss from SpeedFam-IPEC operations subsequent to the close of the acquisition on December 6, 2002 through December 31, 2002. The $11.5 million loss on operations contributed by SpeedFam-IPEC includes a $9.0 million charge for the write-off of in-process research and development.

Annual Financial Data

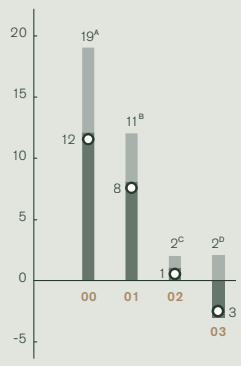
Net Income (Loss)
(millions of dollars)



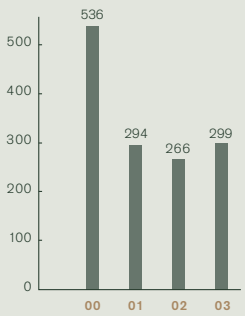
Net Sales
(millions of dollars)



Return on
Shareholders' Equity
(percentage)



Net Shipments
per Employee
(thousands of dollars)



A Our reported net income of $149.4 million, or $1.04 per diluted share, for the year ended December 31, 2000 includes an $89.8 million non-cash charge in accordance with guidance provided in Staff Accounting Bulletin No. 101, "Revenue Recognition in Financial Statements," to reflect the cumulative effect of an accounting change as of the beginning of the fiscal year. Excluding the $89.8 million non-cash charge and a $6.0 million charge related to the write-off of in-process research and development, net income would have been $245.2 million, or $1.70 per diluted share.

B Our reported net income of $144.5 million, or $0.97 per diluted share, for the year ended December 31, 2001 includes pre-tax charges totaling $84.5 million consisting of $13.2 million for merger-related costs incurred in conjunction with our acquisition of GaSonics International Corporation, $47.9 million of restructuring and asset impairment charges, $7.7 million for the write-off of a bad debt, $7.1 million of inventory write-downs associated with the restructuring, and $8.6 million related to the write-down of an investment. Excluding the $84.5 million in charges, net income would have been $202.7 million, or $1.36 per diluted share.

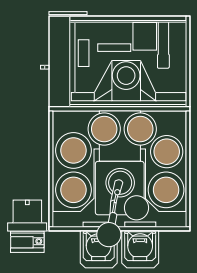
C Our reported net income of $22.9 million, or $0.15 per diluted share, for the year ended December 31, 2002 includes a $17.0 million pre-tax charge for the write-off of debt issuance costs related to the retirement of the $880.0 million Liquid Yield Option Notes, $6.5 million of pre-tax restructuring and severance charges, a $7.7 million pre-tax benefit for the recovery of a receivable previously written-off, and a $4.6 million pre-tax gain on sale of an equity investment. In addition, the 2002 results include an $11.5 million net loss from SpeedFam-IPEC operations subsequent to the close of the acquisition on December 6, 2002 through December 31, 2002, which includes a $9.0 million charge for the write-off of in-process research and development. Without these charges and SpeedFam-IPEC's net loss, the 2002 net income would have been $40.4 million, or $0.27 per diluted share.

D Our reported net loss of $67.8 million, or $0.45 per share, for the year ended December 31, 2003 includes $62.5 million of pre-tax restructuring and other charges, and a non-cash charge of $62.8 million, net of tax, as a cumulative effect of a change in accounting principle from the consolidation of properties previously accounted for as synthetic leases. Without these charges, net income for 2003 would have been $35.9 million, or $0.23 per diluted share.

TECHNOLOGY EXTENDIBILITY is key to defining manufacturing productivity in the nanoelectronics era. Three Novellus products stand out as examples of this extendibility in action: SABRE NExT, INOVA xT and ALTUS.

PROCESS
Copper Electrofill

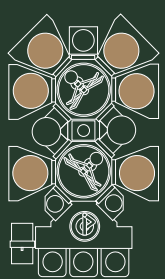
PRODUCT
SABRE NExT



SABRE NExT, introduced in 2003, builds on the success of our industry-leading SABRE xT electrofill solution to provide copper electrofill capabilities at 65 nanometers and beyond. One of our key customers, in fact, has committed to using SABRE NExT to do its development work for 45 nanometer electrofill applications. While the new system offers many enhanced features, it's the same basic platform as the SABRE xT, providing customers with an easy and inexpensive migration path into nanoelectronics manufacturing.

PROCESS
Metal PVD

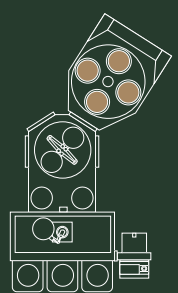
PRODUCT
INOVA xT



The INOVA xT, our physical vapor deposition (PVD) system, employs a unique, cup-shaped sputtering source called a Hollow Cathode Magnetron (HCM). HCM technology has evolved significantly over the past few years, and now it enables the INOVA xT system to extend PVD all the way down to 65 nanometers. Without this extension, semiconductor device manufacturers would be required to use considerably more expensive chemical vapor deposition (CVD) approaches to build copper barrier and seed layers. INOVA xT's technology extendibility alleviates this need, protecting customer investments well into the future.

PROCESS
WCVD

PRODUCT
ALTUS



The ALTUS system, used for depositing tungsten plugs, employs a Novellus innovation called Pulsed Nucleation Layer (PNL) technology. This technology bypasses the pitfalls of Atomic Layer Deposition (ALD) approaches that would otherwise be used for process applications at 65 nanometers and below. PNL runs much faster than traditional ALD, since it "pulses" gases sequentially into the system's reactor chamber to build a film, rather than introducing a single gas, purging the chamber, and only then introducing another gas as required. This speed advantage enables PNL to produce more wafers per hour, making it less expensive for customers. We believe that ALTUS with PNL is extendible to 45 nanometers, thus providing a compelling value proposition to our customers.

2003 was a year of positive accomplishments for Novellus as we prepared the company for a return to growth and prosperity. While business remained sluggish for much of the year in the face of ongoing difficulties in the global economy, I'm pleased to note that we generally fared better than our competitors in the semiconductor equipment industry.

Thanks to a combination of infrastructure realignment, inventory and lease adjustments, and an ongoing commitment to innovation, productivity and technology extendibility, I believe Novellus is stronger than ever, and in an excellent position to resume growth.

For the fiscal year ended December 31, 2003, Novellus reported revenues of $925.1 million, an increase of 10.1% compared to revenues of $840.0 million in 2002. Net loss for 2003 was $67.8 million, or $0.45 per basic share, compared to net income of $22.9 million, or $0.15 per diluted share, for the previous year. The company ended the year with a strong cash, cash equivalents and short-term investments balance of $1.00 billion, compared to a balance of $1.02 billion at the close of 2002.

These 2003 results included $62.5 million of restructuring and other pre-tax charges, and a non-cash charge of $62.8 million, net of tax, as a cumulative effect of a change in accounting principle from the consolidation of properties previously accounted for as synthetic leases. Charges such as these are unfortunate, but, given the nature of high technology's volatile business cycles, occasionally happen. But Novellus' cash position is strong and we generally outperform our competitors in minimizing the impact of such events. Without these charges, net income for 2003 would have been $35.9 million, or $0.23 per diluted share.

Extending our Market Leadership

Novellus has focused over the past year on strengthening our already solid corporate infrastructure and business enterprise. We have a strong balance sheet, we own the majority of all of our buildings and facilities, and we now have the capacity to produce nearly $3 billion in product annually. The company we are today has been aligned to more accurately reflect the current state of affairs in our industry, and I believe we are very well-positioned to take maximum advantage of the global business upturn that is now clearly underway.

Perhaps nothing demonstrates our progress as much as a brief examination of the changes that have taken place at Novellus over the course of the last decade. Ten years ago, when I first joined the company, our entire business was dependent on a single product line. Today, by comparison, we have eight different product lines, all of which are solid and poised for growth.

A closer look at some of these products reveals the strength they wield in the marketplace. In the electrochemical deposition segment, for example, we estimate that our SABRE® Electrofill™ product has a commanding market leadership position in the rapidly growing copper metallization market. Our SPEED® product has steadily maintained its position among the top two offerings in the high-density plasma (HDP) deposition market. Our GAMMA® 2130 surface preparation product

continues to set the pace in its market, and our ALTUS® tungsten deposition system is maintaining its leadership position.

Perhaps most significant, though, is the success we had last year in the market for 300 millimeter physical vapor deposition (PVD) systems for copper barrier/seed applications. As 300 millimeter substrates become the wafer size of choice in advanced manufacturing, our INOVA® PVD product now commands an increasingly significant share of the market for 300 millimeter copper barrier/seed deposition processes. This is an important achievement in that we had no presence at all in this market just a few years ago.

And now that we have almost 6,000 systems spanning eight product lines at work in customer installations around the world, the spares and service portion of our business is growing rapidly. We recognize that this key component represents an ongoing revenue stream that helps to stabilize the normal cyclical sales patterns associated with the semiconductor industry, and accordingly we are running our spares and services organization as a focused line of business.

It is our continuing goal to not only meet, but to exceed the expectations of our customers as we work with them to help reduce their costs, enhance their productivity and gain a competitive edge. Our track record for winning and maintaining customer loyalty is impressive, and we continue to reap the benefits of that commitment. In 2003, for example, Intel Corporation named Novellus as a recipient of its Preferred Quality Supplier award—the fourth year in a row we've been honored with this prestigious award from the world's leading microprocessor supplier.

Nanoelectronics: Redefining Productivity

The Novellus advantage can be summed up in three words: innovation, productivity and technology—all backed by vigorous and continued substantial investments in research and development. We work to develop product innovations that allow semiconductor manufacturers to collapse process steps and extend their current technologies to achieve higher productivity with lower customer costs. We build systems with designed-in productivity advantages that help to lower customer costs by delivering faster throughput and greater efficiency. And we deliver products that are extendible across multiple technology generations, alleviating the need for customers to make additional capital investments.

These three attributes have defined our focus for a number of years. But while our overall commitment to productivity, innovation and technology has not changed, the manner in which that focus affects our customers definitely has. Historically, the whole notion of productivity implied delivering a system that "ran like a hose" without ever breaking down. As the era of nanoelectronics (sub-0.10 micron semiconductor manufacturing) unfolds, however, productivity has taken on a new meaning. And that meaning is being shaped by engineering innovation and technology extendibility.

To remain competitive, our customers must successfully move to the world of nanoelectronics. But here the daunting laws of physics begin to exert a critical influence, and chip manufacturers are discovering a need to completely overhaul their existing investments as they migrate from one technology node to the next. Through our innovations and commitment to technology extendibility, however, we are easing this transition. We constantly upgrade our systems through Continuous Improvement Program (CIP) activities that ensure that our platforms and processes deliver consistent results for our customers. This enables our customers to use the same manufacturing processes and system configurations as they migrate downward on the nanoelectronics curve, from 130 nanometers to 90 nanometers to 65 nanometers and beyond. It provides them with a highly cost-effective alternative to qualifying and then investing in brand new hardware and manufacturing techniques that otherwise would be required.

Expanding Our Footprint

Another important focus for Novellus is to expand our local presence in all of the global geographies we serve. We continued to make excellent progress during 2003 in pursuing this objective around the world. To cite one prominent example, we signed a partnership agreement with Fudan University of Shanghai, China to establish a semiconductor manufacturing research center. The Fudan-Novellus Interconnect Research Center will be equipped with a suite of our copper manufacturing tools, and will function as a regional research hub for copper interconnect technology serving Fudan students, research groups at other universities and—perhaps most important of all—our regional customers.

The implications of an agreement such as this are far-reaching when one considers that nearly 60% of Novellus' revenues are now derived from sales to customers in Asia. Just as we have extended our technology, we continue to extend our market reach. We believe that investing in the training and education of the local workforce and infrastructure in China will help spur what, by any estimation, is a huge market opportunity for growth in the years ahead.

To Our Shareholders, Customers, Partners and Employees

People Make the Difference

Finally, a number of appointments strengthened our management team in 2003. Thomas St. Dennis was named Novellus' executive vice president of sales and customer satisfaction, and Chien Chiang joined us as vice president of research and development. Our diverse and multi-cultural team has a great deal of experience—our executives, in aggregate, have been with the company for an average of eight years—and that provides us with a critical competitive edge moving forward.

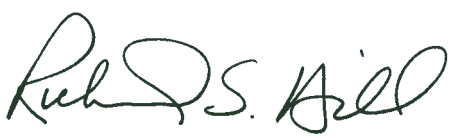
I'm also very proud of our employees, who have weathered difficult times in the semiconductor industry over the past few years. Our people adhere to an internal management philosophy known as Knowledge, Skills and Abilities (KSA), which permeates all levels of our corporate culture. We pride ourselves on doing things differently at Novellus, and we believe that the KSA philosophy helps our people to innovate and contribute more effectively to our efforts to advance the frontiers of semiconductor manufacturing technology.

We also train all our employees to adhere to our corporate commitment to ethical business practices, to full disclosure and to doing the right thing for the benefit of our shareholders. That training extends to educating our people on how to make decisions that are driven by a better understanding of our business, and how they can individually and collectively improve our bottom line. To all of our employees: thank you for your commitment, your sacrifices and for a job well done in 2003.

A Bright Future

By any measure, the global recession of the last few years has taken its toll on companies in all walks of business, and the semiconductor equipment industry is no exception. But I believe we have accomplished a great deal during this time—both internally, through our focus on operating processes and product innovations, and externally, in growing our market share and taking care of our customers.

We have indeed prepared our company for growth, and as the economic recovery that is already underway gathers momentum, I have great optimism for the future. In the fourth quarter of 2003, the semiconductor industry grew by more than 20%, and most experts predict growth of at least that much and even more in the year to come. On behalf of all of us at our company, I look forward to taking advantage of these opportunities, and growing with them to provide outstanding shareholder value. And I thank those shareholders—along with all of our customers, partners and employees—for their continued support.



Richard S. Hill
Chairman of the Board and Chief Executive Officer

Forward-looking Statements

Except for the historical information presented, certain matters discussed in this document are forward-looking statements that are subject to certain risks and uncertainties that could cause actual results to differ materially from any future results, performance or achievements expressed or implied by such statements. Words such as "anticipates," "expects," "intends," "plans," "believes," "seeks," "estimates" and similar expressions identify forward-looking statements. Forward-looking statements in this document include, without limitation, statements regarding Novellus' market share position in thin film deposition, surface preparation and chemical mechanical planarization equipment; the importance of nanoelectronics manufacturing and Novellus' role in assisting chipmakers in this realm; the key role of technology extendibility in defining manufacturing productivity in the nanoelectronics era; the commitment of a key customer to using SABRE NExT to do its development work for 45 nanometer electrofill applications; Novellus' return to growth and prosperity; Novellus' strength and growth positioning; Novellus' tendency to generally outperform competitors in minimizing the impact of accounting charges; Novellus' capacity to produce approximately $3 billion in product annually; Novellus' alignment to reflect the current state of the semiconductor equipment industry; Novellus' ability to take maximum advantage of the current global business upturn; the strength and growth potential of Novellus' eight product lines; the power of Novellus' SABRE® Electrofill™, SPEED® and GAMMA® 2130 surface preparation and ALTUS® tungsten deposition system products; the rapid growth of Novellus' spares and service business; Novellus' vigorous and continued substantial investments in research and development; the extendibility of Novellus' products; chipmakers' need to overhaul their existing investments as they migrate to the next technology node; expansion of Novellus' local presence in all of the global geographies served by the company; and Novellus' belief that its partnership with Fudan University of Shanghai will help spur a huge opportunity for growth in China.

Factors that could cause actual results to differ materially from any future results, performance or achievements expressed or implied by such statements include risks and uncertainties such as a decrease in demand for Novellus' products; the inaccuracy of Novellus' expectations regarding the direction of the semiconductor industry and Novellus' role therein; the incorrect assessment of the importance of technology extendibility to nanoelectronics manufacturing productivity; the unanticipated failure of a key customer to use SABRE NExT for its 45 nanometer electrofill applications development work; an interruption in the current global business upturn; the failure of Novellus' infrastructure realignment, inventory and lease adjustment and commitment to innovation, productivity and technology extendibility to create strength and opportunities for growth; unexpected weakening of Novellus' cash position; unanticipated damage to Novellus' properties and facilities; Novellus' inaccurate assessment of the demands of the semiconductor equipment industry; the incorrect allocation of Novellus' resources in anticipation of the economic upturn; the inaccuracy of Novellus' expectations regarding the capabilities of its existing product lines; Novellus' inability to maintain the strength of its SABRE® Electrofill™, SPEED® and GAMMA® 2130 surface preparation and ALTUS® tungsten deposition system products as compared to competitors' product offerings; Novellus' failure to meet customer expectations regarding spares and service; the unanticipated reallocation of Novellus' investments in research and development; Novellus' failure to anticipate the needs of future product generations; failure of chipmakers to rapidly adopt new technologies; difficulties in establishing local footholds in foreign markets; and slower than anticipated economic development in the China region. These risks, as well as other risks relevant to Novellus, are detailed from time to time in Novellus' SEC filings, including Novellus' Reports on Form 10-K, Form 10-Q and Form 8-K and Novellus' Annual Reports to its shareholders. Copies of Novellus' SEC filings are available from Novellus' Investor Relations Department.

All forward-looking statements included in this document are based on information available to Novellus on the date this document was first delivered to Novellus' shareholders. Novellus assumes no obligation to update any of the forward-looking statements contained herein. Shareholders are cautioned not to place undue reliance on such statements, which speak only as of the date this document was first delivered.

UNITED STATES SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

Form 10-K

(Mark One)

☑ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the fiscal year ended December 31, 2003

OR

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the transition period from to

Commission File Number 000-17157

Novellus Systems, Inc.

(Exact name of Registrant as specified in its charter)

California	**77-0024666**
(State or other jurisdiction of incorporation of organization)	*(I.R.S. Employer Identification Number)*

4000 North First Street, San Jose, California 95134
(Address of principal executive offices including Zip code)

(408) 943-9700
(Registrant's telephone number, including area code)

Securities registered pursuant to Section 12(b) of the Act: None

Securities registered pursuant to Section 12(g) of the Act:

Common Stock, no par value
(Title of Class)

Indicate by check mark whether the Registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the Registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☑ No ☐

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of Registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. ☑

Indicate by check mark whether the Registrant is an accelerated filer (as defined in Exchange Act Rule 12b-2. Yes ☑ No ☐

As of June 27, 2003 the aggregate market value of voting and non-voting stock held by non-affiliates of the Registrant was $5,417,810,884, based on the average of the high and low prices of the Common Stock as reported on the NASDAQ National Market on such date. Shares of Common Stock held by officers, directors and holders of more than 5% of the outstanding Common Stock have been excluded from this calculation because such persons may be deemed to be affiliates. This determination of affiliate status is not necessarily a conclusive determination for other purposes.

The number of shares of the Registrant's Common Stock outstanding on March 5, 2004 was 153,331,661.

Documents Incorporated by Reference: Part III of this Form 10-K incorporates information by reference from the Registrant's Proxy Statement for its 2004 Annual Meeting of Shareholders. Except as expressly incorporated by reference, the Registrant's Proxy Statement shall not be deemed to be a part of this Form 10-K.

NOVELLUS SYSTEMS, INC.

2003 ANNUAL REPORT ON FORM 10-K

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This Annual Report on Form 10-K and certain information incorporated herein by reference contain forward-looking statements within the "safe harbor" provisions of the Private Securities Litigation Reform Act of 1995. All statements included or incorporated by reference in this Annual Report on Form 10-K, other than statements that are purely historical, are forward-looking statements. Forward-looking statements may be identified by use of words such as "anticipates," "expects," "intends," "may," "plans," "believes," "seeks," "estimates," "will" and similar expressions also identify forward-looking statements. Forward-looking statements are not guarantees of future performance and are subject to risks and uncertainties that could cause actual results to differ materially from the results contemplated by the forward-looking statements.

The forward-looking statements in this Annual Report on Form 10-K are subject to additional risks and uncertainties further discussed under "Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations — Forward-Looking Statements and Risk Factors," and are based on information available to us on the date hereof. We assume no obligation to update any forward-looking statements. Readers are cautioned not to place undue reliance on forward-looking statements, which speak only as of the date of this Annual Report on Form 10-K. Readers should also consult the forward-looking statements and risk factors listed from time to time in our Reports on Forms 10-Q, 8-K, 10-K and in our Annual Reports to Shareholders.

PART I

The following information should be read in conjunction with the Consolidated Financial Statements and notes thereto included in this Annual Report.

Item 1. *Business*

Novellus Systems, Inc., a California corporation organized in 1984, develops, manufactures, sells and supports systems used in the fabrication of integrated circuits. The customers for these products are manufacturers of semiconductor integrated circuits, or chips, who either incorporate the chips they manufacture in their own products or sell them to other companies for use in electronic products.

Integrated circuits are generally built on a silicon wafer base and include a large number of different components, such as transistors, capacitors and other electronic devices that are connected by multiple layers of wiring, or interconnects. To build an integrated circuit, transistors are first created on the surface of the silicon wafer. The wiring and insulating structures are then added as multiple thin-film layers through a series of manufacturing process steps. Typically, a first layer of dielectric (insulating) material is deposited on top of the formed transistors. Subsequent layers of metal (historically, aluminum) are formed on top of this base layer, etched to create the conductive lines that carry the electricity, and then filled with dielectric material to create the necessary insulators between the lines, in a manufacturing process called subtractive aluminum. When copper wires are being constructed, the manufacturing process, called copper damascene, is a mirror image of that described above: the insulator (dielectric) is etched, and the copper wiring is created in the etched insulator via a high-technology electroplating process called electrochemical deposition. Building either copper or aluminum wiring requires these manufacturing steps to be repeated many times; advanced chip designs may require as many as 500 process steps.

Novellus has historically focused on a single segment of the chipmaking process, the deposition of conducting and insulating material films. Novellus' advanced deposition systems use chemical vapor deposition (CVD), physical vapor deposition (PVD), and electrochemical deposition (ECD) processes to form the interconnects in the device structure. Our High-Density Plasma CVD (HDP) and Plasma-Enhanced CVD (PECVD) systems employ a chemical plasma to deposit all of the dielectric or insulating layers and some of the metal or conductive layers on the surface of a semiconductor wafer. Our PVD systems use direct-current power to deposit conductive metal layers by sputtering metallic atoms from the surface of a target source. Our Electrofill (ECD) systems are used for depositing conductive layers of copper on wafers in a damascene manufacturing process.

In 2001, Novellus expanded beyond deposition technologies into the area of wafer surface preparation when we acquired GaSonics International Corporation, a manufacturer of systems used to clean and prepare a wafer surface after the manufacturing steps that precede deposition. We also acquired SpeedFam-IPEC, Inc., a manufacturer of chemical mechanical planarization (CMP) products in 2002. As the semiconductor industry migrates to the use of copper and low-k (low-capacitance) dielectrics in semiconductors, the manufacturing steps for surface preparation and CMP are becoming increasingly important.

Our headquarters are located at 4000 North First Street, San Jose, California 95134 and our telephone number is (408) 943-9700.

Additional information about Novellus is available on our web site at **www.novellus.com**. We make available free of charge on our web site our Annual Reports on Form 10-K, our Quarterly Reports on Form 10-Q, and our Current Reports on Form 8-K, as well as amendments to those Reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended. These reports are available as soon as reasonably practicable after we electronically file them with — or furnish them to — the Securities and Exchange Commission, or the SEC. Information contained on our web site is not part of this Annual Report on Form 10-K or of our other filings with the SEC.

Industry Background

Over the past twenty years, the semiconductor industry has grown rapidly as a result of increasing demand for personal computers, the expansion of the Internet and the telecommunications industry, and the emergence of new applications in consumer electronics. More recently, growth has slowed, and there are signs that the industry may be beginning to mature. While unit demand for semiconductor devices continues to rise, the average selling prices of chips continue to decline. There is growing pressure on chipmakers to reduce manufacturing costs while simultaneously increasing the value of their products. The semiconductor industry has also been historically cyclical, with periods of rapid expansion followed by periods of over-capacity.

Several technological trends characterize semiconductor manufacturing. Perhaps the most prominent of these trends is increasing density. Moore's Law, first postulated in the mid-1960s and still substantially accurate almost 40 years later, states that the density of circuitry on an individual semiconductor chip doubles every 18 months. Today's advanced devices are being manufactured with line widths as small as 0.09 microns, or 90 nanometers, and with up to ten layers of interconnect circuitry. By increasing circuit density, manufacturers can pack more electronic components on a chip and thereby provide higher performance and value.

Another trend worth noting is the transition to copper wiring from aluminum wiring as the primary conductive material in semiconductor devices. Copper has a lower electrical resistance value than aluminum, and this provides a number of performance advantages. Because of the superior properties of copper, a chip made with copper may need only half as many metal layers as one made with aluminum, providing considerable reduction in manufacturing cost. In addition, copper wiring produces a substantial improvement in device performance and a significant reduction in power requirements compared to aluminum.

A similar transition is underway from traditional silicon oxide films to dielectric insulators with a low dielectric constant, or low-k. Low-k dielectrics are better at limiting the capacitance between metal lines in a device, which improves the speed and performance of the chip. However, low-k materials are also less stable than silicon oxide, and this poses a host of new challenges to the semiconductor industry in pursuing its goals of increased circuit density and, at the same time, lower manufacturing costs and elevated product performance and value.

Another important trend is the move to larger wafer sizes. Chipmakers are now migrating to larger, 300mm wafers because of the potential manufacturing cost advantages of these larger wafers compared to 200mm. The 300mm wafers provide up to 2.25 times the number of chips per wafer, and hence may provide significant economies of scale in the manufacturing process.

These trends shape the equipment and process demands of our customers. Our customers generally measure the cost and performance of their production equipment in terms of "cost per wafer," a ratio

determined by factoring in the costs for acquisition and installation of a system, operating costs, and net throughput rate. A system with higher net throughput allows a manufacturer to recover the purchase price over a greater number of wafers, thereby reducing the cost of ownership of the system on a per-wafer basis. Yield and film qualities are also significant factors in selecting processing equipment. The increased cost of larger and more complex semiconductor wafers have made high yields extremely important to our customers. To achieve elevated yields and better film quality, systems must be able to repeat a process consistently and reliably. This characteristic, known as repeatability, is critical in achieving commercially acceptable yields. Systems that operate at desired throughput rates without approaching critical tolerance limits can achieve repeatability more easily.

Strategy

Our business objective is to use our core expertise to increase our market share in interconnect manufacturing, and strengthen our position as a leading supplier of semiconductor processing equipment. The following are the key elements of our strategy:

Emphasize High-Productivity Systems — We established our current position in the industry by emphasizing high productivity as the principal benefit that our products and technologies deliver to customers. Our unique multi-chamber system for continuous PECVD processing illustrates our commitment to productivity. This multi-chamber design enables our PECVD systems to attain very high levels of wafer throughput, yield and film quality. The simple architecture of our systems also takes up less space in the fabrication facility (fab) and requires less downtime than other system designs. We intend to retain our historical focus on productivity by applying our multi-chamber and continuous processing architecture in product enhancements and new product offerings.

Focus on Reducing Customer Costs — Cost is an important component when measuring overall productivity. To that end, we strive to provide products and technologies that reduce our customers' overall cost of ownership by offering chipmakers a number of process improvements and process differentiators, as well as by providing highly reliable systems that require less servicing than competing alternatives in the market.

Differentiate our Service Philosophy — Our philosophy is to develop reliable products that require less servicing than competing alternatives. We strive to provide support that minimizes the downtime and service costs that our customers experience.

Lead in our Target Markets — Our goal is to command a leadership position in each of our target market areas. We aim to be a leading provider in each of the subsets that comprise the served available market for our deposition products: HDP, CVD, PECVD, PVD and ECD. As a result of our 2001 acquisition of GaSonics and subsequent internal product development efforts, we are one of the leading providers of surface preparation products. Our 2002 acquisition of SpeedFam-IPEC has enabled us to enter a new market segment, CMP, and we are aggressively pursuing a leadership position in this market segment as well.

Broaden our Interconnect Offerings — As semiconductor manufacturing technology becomes more complex, the interconnect structures on a chip take on greater importance in the manufacturing process. We believe that by expanding beyond our historical focus on deposition products, we can add value in related interconnect manufacturing process steps. The acquisitions of GaSonics and SpeedFam-IPEC are examples of this strategy in action.

Focus on Major Semiconductor Manufacturers — In 2003, we sold systems to each of the world's top 20 semiconductor manufacturing equipment capital spenders. Our sales objective is to work closely with our customers as they expand existing facilities, retrofit older manufacturing plants with new equipment, and build new fabs. We strive to build customer loyalty and achieve a high level of repeat business by offering high-reliability products, comprehensive field support, and a responsive parts replacement and service program.

Expand Market Presence in Asia — While we derive a significant percentage of net sales from Asia, we believe that substantial additional growth potential exists in the region over the long term. Japan, Taiwan and Korea continue to represent a significant portion of the world's capacity for semiconductor manufacturing, and

China is rapidly becoming a major manufacturing region for the industry. Our local presence in Asia includes sales and support offices throughout Japan. In addition, we maintain four offices in Korea, three in China, three in Taiwan, and one each in Malaysia, Singapore and India.

Leverage our Low Cost Manufacturing Structure — We perform all system design, assembly and testing in-house, and outsource the manufacture of major subassemblies. This manufacturing strategy allows us to minimize our fixed costs and capital expenditures and gives us the flexibility to increase capacity as needed. Outsourcing also allows us to focus on product differentiation through system design and quality control, and helps to ensure that our subsystems incorporate the latest third-party technologies in robotics, gas panels and microcomputers. We work closely with our suppliers to achieve mutual cost reduction through joint development projects.

Products

Deposition Technologies

Our historical strength is rooted in deposition products, where we have consistently maintained a leadership position in the industry. We currently offer products that address the needs of manufacturers across a number of different deposition technologies — CVD, PVD and ECD.

Since the introduction of our Concept One dielectric platform in 1987, we have offered a range of processing systems for dielectric and metal deposition. In 1991, we introduced the Concept Two platform — a modular, integrated production system capable of depositing both dielectric and conductive metal layers by combining one or more processing chambers with a common, automated wafer handler. The Concept Two enabled chipmakers to increase production throughput and system capability by adding process modules, without having to replace existing equipment. In 1997, we introduced the Concept Three platform, which built on the foundation of Concept Two to offer greater throughput in 300mm wafer manufacturing applications.

CVD Products

In the CVD process, manufacturers place wafers in a reaction chamber, introduce a variety of pure and precisely metered gases into the chamber, and then add some form of energy to activate a chemical reaction that deposits a film on the wafer. The CVD process is the traditional method used to deposit dielectric films on wafers. Manufacturers also use CVD to deposit conductive metal layers, particularly tungsten, as it is difficult to deposit such layers on devices with very small features when using conventional PVD or other deposition technologies.

HDP CVD Products

Concept Two SPEED® — Introduced in 1996, Concept Two SPEED was the semiconductor industry's first high-density plasma system capable of high-volume manufacturing. Today, Concept Two SPEED is one of the top two product offerings for the HDP CVD marketplace. Concept Two SPEED is a single-wafer processing system for 200mm substrates. SPEED is designed primarily to deposit dielectric materials in an aluminum interconnect manufacturing process. Concept Two SPEED may also be used to deposit pre-metal layers in copper manufacturing processes.

Concept Three SPEED® — The Concept Three SPEED is designed to apply dielectric material in the 300mm wafer manufacturing processes. Because it is based on our production-proven Concept Two product, Concept Three SPEED offers minimal risk to our customers in making the transition from 200mm to 300mm wafers.

W-CVD Products

Concept Two ALTUS — In 1994, we introduced the Concept Two ALTUS, used to deposit the tungsten plugs and vias that connect aluminum interconnect lines in aluminum-based chips. The Concept Two ALTUS combines the modular architecture of the Concept Two with an advanced tungsten CVD dual-process

chamber. The system is ideal for meeting the requirements of high-volume, automated 200mm wafer fabs producing semiconductor devices at 0.18 micron and below.

Concept Three ALTUS — The Concept Three ALTUS, introduced in 1997, provides the same advantages to 300mm wafer tungsten deposition as its Concept Two ALTUS predecessor delivers for 200mm wafer applications.

PECVD Products

Concept Two SEQUEL Express® — Introduced in 1999, the Concept Two SEQUEL Express is designed to deposit our CORAL® family of low-k dielectric films, as well as other advanced films required for manufacturing 0.18 micron-and-smaller semiconductor devices. With a throughput in excess of 110 wafers per hour, Concept Two SEQUEL Express delivers up to 40 percent higher capital productivity and 40 percent lower cost of ownership than competing PECVD systems.

VECTOR® — Introduced in 2000, VECTOR is a PECVD system for depositing dielectric films on 300mm wafers. VECTOR delivers a fully integrated low-k dielectric structure at 0.10 micron-and-smaller design rules. With approximately two-thirds the footprint of the nearest competitor, and 33% fewer critical subsystems, VECTOR delivers twice the capital productivity of the nearest competitor.

PVD Products

PVD, also known as "sputtering," is a process where ions of an inert gas such as argon are electrically accelerated in a high vacuum toward a target of pure metal, such as tantalum or copper. Upon impact, the argon ions sputter off the target material, which is then deposited as a thin film on the silicon wafer. PVD processes are used to create the barrier and seed layers in copper damascene interconnect applications. We entered the PVD marketplace with the acquisition of Varian Associates' Thin Film Systems Division in 1997.

INOVA® — The INOVA 200mm system was introduced in 1998 with a multi-chamber, single-wafer processing design. The INOVA's Hollow Cathode Magnetron (HCM) ionized PVD source continues to gain market acceptance based on its superior barrier seed step coverage.

INOVA xT — In 2000, we introduced the 300mm INOVA xT, which features HCM technology. The INOVA xT continues to offer superior barrier performance which leads to low via resistance and improved device reliability.

Electrofill™ Products

Our Electrofill products are used to build the copper primary conduction layers in advanced integrated circuits. Electrofill uses copper to fill a structure created within the circuit's insulating layers in a manufacturing process called copper damascene. Damascene manufacturing reverses the manufacturing process used with aluminum, where the metal is deposited first, then etched to create lines and vias, and finally filled with insulating layers between the metal lines. Our highly reliable and cost-effective Electrofill products employ liquid chemistries and electrolytic principles to deposit the copper wiring into the dielectric structure.

SABRE — The SABRE copper Electrofill system, introduced in 1998, is one of the most reliable and technologically advanced copper ECD systems available on the market. SABRE meets today's technology requirements for copper metal layers to 90 nanometer, or 0.09 micron, line widths and beyond. The SABRE employs a proprietary electrofilling cell that eliminates contamination of the back of the wafer with copper. It features a unique plating cell design that improves the repeatability of the copper fill. The simplicity of SABRE's design is the key to the system's high reliability and manufacturing availability. When coupled with the INOVA PVD system, SABRE provides a complete system for depositing advanced copper interconnects.

SABRE xT — The second generation SABRE xT, introduced in 1999, is the industry's leading ECD platform for both 200mm and 300mm wafers. New features on the SABRE xT that were not found on the original SABRE include programmable electrical waveforms, advanced plating chemistries, an integrated anneal module and closed-loop chemical monitoring.

SABRE NExT — Introduced in 2003, the SABRE NExT (Nano Era xT) builds on the SABRE xT's production track record, offering a proprietary, single step chemistry, a new anode cell design, and other hardware refinements to tackle the complex process requirements of 90 nanometer, 65 nanometer and 45 nanometer interconnect structures. In comparison to the SABRE xT, the SABRE NExT reduces chemical costs by over 30%, and when combined with improved throughput, cuts overall cost of ownership by over 10% on what is already a highly productive process.

Surface Preparation Technologies

Photoresist strip and clean processes represent an area of semiconductor manufacturing that is becoming increasingly important with the industry's migration to copper interconnects. Chipmakers use surface preparation products to remove photoresist and other potential contaminants from a wafer before proceeding with the next deposition step in the manufacturing process. We entered this application arena by acquiring GaSonics in 2001, and today we are one of the industry's leading suppliers of dry-clean surface preparation products.

GAMMA™ 2100 — The GAMMA 2100 200mm photoresist removal system uses a plasma source to strip photoresist. The GAMMA architecture features a multi-station sequential processing design with six strip stations, resulting in high wafer throughput with a minimal number of critical subsystems.

GAMMA 2130 — The GAMMA 2130 system is a front-end-of-line photoresist strip system for 300mm wafers. Our multi-station sequential processing architecture incorporates six stations within a single process chamber, enabling a 30% higher throughput rate than the closest competitor.

PEP IRIDIA® — The PEP IRIDIA is an advanced cleaning system designed for sub-0.18-micron 200mm wafer applications. The IRIDIA's modular architecture allows manufacturers to configure the system for both front-and back-end-of-line cleaning applications down to 90 nanometers. Targeted at critical steps in the copper and low-k manufacturing processes, the IRIDIA offers the highest productivity of any 200mm dry-clean system currently on the market.

CMP Technologies

CMP systems polish the surface of a wafer after a deposition step to create a flat topography before moving on to subsequent manufacturing steps. Since copper is more difficult to polish and smooth than previous-generation aluminum interconnects and low-k dielectrics are much more porous than their predecessors, CMP has been elevated to the forefront of the enabling technology required in a copper damascene manufacturing process. In recognition of this trend, we acquired SpeedFam-IPEC, a global supplier of CMP systems used in the fabrication of advanced copper interconnects, in 2002. We believe that the opportunity to integrate the planarization, deposition and surface preparation steps and optimize them for overall performance gives us an important advantage in extending copper and low-k processes to advanced semiconductor devices.

MOMENTUM™ — MOMENTUM is a high-throughput, dry-in/dry-out CMP system for all 200mm wafer process applications. Designed with extendibility to accommodate future reductions in line widths, the MOMENTUM has four independent wafer-polishing platens that allow for maximum manufacturing flexibility. MOMENTUM also employs a patented orbital polishing motion that minimizes surface dishing and erosion, and features a through-the-pad slurry delivery system that results in more efficient consumption of polishing chemicals.

MOMENTUM 300 — Our MOMENTUM 300 is a highly flexible, dry-in/dry-out CMP system that provides a transition for manufacturers moving from 200mm to 300mm wafer processing. The system is unique in that it combines a number of advanced planarization and in-line inspection technologies to produce highly effective throughput, yield management, superior process capabilities and low cost of ownership.

Marketing, Sales and Service

We market products worldwide to manufacturers of semiconductor devices. In North America, we sell our products through a direct sales force that operates out of eight sales and support offices. In Europe, we sell our products through our sales and support facilities in France, Germany, Ireland, Italy and the United Kingdom. In Asia, we sell our products directly in China, Japan, Korea, Malaysia, Singapore and Taiwan. Our Japanese operations, with headquarters near Tokyo, include ten sales offices.

The ability to provide prompt and effective field support is critical to our sales efforts, and we believe the support that we provide to our installed base has accelerated the penetration of certain key accounts. We also believe that our marketing efforts are enhanced by the technical expertise of our research and development personnel, who provide customer process applications support and participate in a number of industry forums, conferences and technical symposia.

Equally significant, we believe that the design simplicity of our systems substantially enhances our ability to support our customers. In 1992, we became the first semiconductor equipment manufacturer to extend our warranty up to 24 months from shipment, and in 1993 we began to include under warranty the cost of preventive maintenance as well as the cost of consumable parts on some systems. We offer maintenance contracts as an additional service to customers.

For the year ended December 31, 2003, Samsung Electronics and Intel Corporation accounted for 27% and 12% of our net product sales, respectively. For the year ended December 31, 2002, Samsung Electronics, Intel Corporation, Taiwan Semiconductor Manufacturing Co. and IBM Corporation accounted for 17%, 11%, 11% and 10% of our net product sales, respectively. For the year ended December 31, 2001, Intel Corporation accounted for 16% of our net product sales. Historically, we have sold a significant proportion of systems in any particular period to a limited number of customers. Sales to our ten largest customers in 2003, 2002 and 2001 accounted for 76%, 79% and 61% of our net sales, respectively. We expect that sales of our products to relatively few customers — none of which has entered into a long-term agreement requiring it to purchase our products — will continue to account for a high percentage of our net sales in the foreseeable future.

Export sales — including sales by our Japanese subsidiary — for the year ended December 31, 2003 were $603.5 million, or 65% of net sales. For the year ended December 31, 2002, export sales were $513.6 million, or 61% of net sales, while export sales for the year ended December 31, 2001 were $733.9 million, or 55% of net sales.

Backlog

As of December 31, 2003, our backlog was $341.0 million, with approximately $0.2 million of cancellations in the period subsequent to December 31, 2003 to the date of this Annual Report on Form 10-K. As of December 31, 2002, our backlog was $304.4 million, with approximately $43.5 million of cancellations subsequent to December 31, 2002. Our backlog includes only those customer orders for which we have accepted purchase orders and assigned shipment dates within twelve months. All orders are subject to cancellation or rescheduling by customers, with limited or no penalties. Some products are shipped in the same quarter in which the order was received. For this reason, and because of possible changes in delivery schedules, cancellations of orders and delays in shipments, our backlog as of any particular date is not necessarily a reliable indicator of actual shipments for any succeeding period.

Research and Development

The highly cyclical semiconductor manufacturing industry is subject to rapid technological change and continual new product introductions and enhancements. Our ability to remain competitive depends on our success in developing new and enhanced systems, and introducing them at competitive prices on a timely basis. For this reason, we devote a significant portion of our personnel and financial resources to research and development programs.

Our current research and development efforts are directed at developing new systems and processes and improving the capabilities of existing systems. Research and development programs include advanced PVD

systems, advanced gap fill technology, primary conductor metals, low-k dielectric materials, CMP systems, and additional advanced deposition and surface preparation technologies for the next generation of smaller-geometry fabrication lines. All new systems under development are capable of processing 300mm wafers.

Expenditures for research and development during 2003, 2002 and 2001 were $227.4 million, $222.3 million and $272.0 million, respectively. These expenditures represented approximately 25%, 26% and 20% of our net sales in 2003, 2002 and 2001, respectively. We believe that research and development expenditures will continue to represent a substantial percentage of our net sales in the future.

Manufacturing

Our manufacturing activities consist primarily of assembling and testing components and subassemblies that we acquire from third-party vendors and then integrate into a finished system. We utilize an outsourcing strategy for the manufacture of major subassemblies, and we perform all system design, assembly and testing in-house. Our outsourcing strategy enables us to minimize fixed costs and capital expenditures, and provides us with the flexibility to increase production capacity. This strategy also allows us to focus on product differentiation through system design and quality control. We believe that our use of outsourced product specialists enables our subsystems to incorporate the latest and most advanced technologies in robotics, gas panels and microcomputers without the need for in-house expertise. We strive to work as closely as possible with all of our suppliers to achieve mutual cost reduction through joint development efforts.

Although we make reasonable efforts to ensure that such parts are available from multiple suppliers, certain key parts may only be obtained from a single or limited source. These suppliers are, in some cases, thinly capitalized, independent companies who generate significant portions of their business from us and/or a small group of other companies in the semiconductor industry. We seek to reduce our dependence on single or limited source suppliers. However, disruptions in parts delivery or termination of certain of these suppliers may occur, and such disruptions and terminations could have an adverse effect on our operations. A prolonged inability to obtain certain parts could have a material adverse effect on our business, financial condition or results of operations, and could result in our inability to meet customer demands on time.

We manufacture our systems in clean-room environments similar to those used by semiconductor manufacturers for chip fabrication, which helps to minimize the amount of particulates and other contaminants in the final assembled system to improve yields and reduce the level of contaminants for our customers. Following assembly, we package our completed systems in plastic shrink-wrap to maintain clean-room standards during shipment.

Competition

Significant competitive factors in the semiconductor equipment market include system performance and flexibility, cost, the size of each manufacturer's installed customer base, customer support capability and the breadth of a company's product line. We believe that we compete favorably in all of the market segments we serve because of the fundamental advantages associated with our system performance and flexibility, low cost of ownership, high wafer yields and customer support. However, we face substantial competition from both established competitors and potential new entrants in each of these markets. Installing and integrating capital equipment into a semiconductor production line represents a substantial investment. For this reason, once a manufacturer chooses a particular vendor's capital equipment, experience has shown that the manufacturer will generally rely upon that equipment for the useful life of the specific application. As a result, all of today's semiconductor equipment makers typically have difficulty in selling a product to a particular customer to replace or substitute for a competitor's product previously chosen or qualified by that customer.

In the CVD, PECVD, HDP and PVD markets, our principal competitor is Applied Materials, Inc. (Applied), a major supplier of systems who has established a substantial base of installed equipment among today's leading semiconductor manufacturers. In the ECD market, our principal competitors are Applied and Semitool, Inc. Our principal competitors in the surface preparation product arena are Mattson Technologies, Inc. and Axcelis Technologies, Inc. In the CMP market, our major competitors are Applied and Ebara Corporation.

Patents and Proprietary Rights

We intend to continue to pursue patent and trade secret protection for our technology. We currently hold over 300 patents. We have many pending patent applications, and we intend to file additional patent applications as appropriate. There can be no assurance that patents will be issued from any of these pending applications or future filings, or that any claims allowed from existing patents or pending or future patent applications will be sufficiently broad to protect our technology. While we intend to vigorously protect our intellectual property rights, there can be no assurance that any patents we hold will not be challenged, invalidated or circumvented, or that the rights granted thereunder will provide competitive advantages to us. See Item 3, Legal Proceedings, for further discussions.

We also rely on trade secrets and proprietary technology that we protect through confidentiality agreements with employees, consultants, and other parties. There can be no assurance that these parties will not breach these agreements, that we will have adequate remedies for any breach, or that our trade secrets will not otherwise become known to or independently developed by others.

There has been substantial litigation regarding patent and other intellectual property rights in semiconductor-related industries. We are currently involved in such litigation. Except as set forth in Item 3, Legal Proceedings, we are not aware of any significant claim of infringement by our products of any patent or proprietary rights of others; however, we could become involved in additional litigation in the future. Although we do not believe the outcome of current litigation will have a material impact on our business, financial condition or results of operations, no assurances can be given that current or future litigation will not have such an impact. For further discussion see Item 3, Legal Proceedings.

In addition to current litigation, our operations — including the further commercialization of our products — could provoke additional claims of infringement from third parties. In the future, litigation may be necessary to enforce patents issued to us, to protect trade secrets or know-how that we own, to defend ourselves against claimed infringement of the rights of others, or to determine the scope and validity of the proprietary rights of others. Any such litigation could result in substantial cost and diversion of efforts and could have a material adverse effect on our financial condition or operating results. In addition, adverse determinations in such litigation could result in loss our of proprietary rights, subject us to significant liabilities to third parties, require us to seek licenses from third parties, or prevent us from manufacturing or selling our products. Any of these occurrences could have a material adverse effect on our business, financial condition or results of operations.

Employees

On December 31, 2003, we had 2,902 full-time and temporary employees. None of our employees are represented by a labor union, and we have never experienced a work stoppage, slowdown or strike. We consider our employee relations to be good.

The success of our future operations depends in large part on our ability to recruit and retain senior management, engineers, technicians, marketing, sales and service professionals and other key personnel. Qualified people are in great demand across each of these industry disciplines, and there can be no assurance that we will be successful in retaining or recruiting key personnel.

Business Combinations

We acquired SpeedFam-IPEC on December 6, 2002 in a stock-for-stock acquisition. Each share of SpeedFam-IPEC common stock and stock options outstanding as of December 6, 2002 was converted into 0.1818 of a share of Novellus common stock or options on a fixed exchange ratio basis.

Environmental Matters

Neither compliance with federal, state and local provisions regulating discharge of materials into the environment, nor remedial agreements or other actions relating to the environment, has had — or is expected

to have — a material effect on our capital expenditures, financial condition, results of operations or competitive position.

Item 2. ***Properties***

We conduct our operations primarily in thirteen buildings with approximately 1,109,000 square feet of space. Eight buildings totaling approximately 559,000 square feet are located in the San Jose, California area, and four buildings totaling approximately 442,000 square feet are located in the Portland, Oregon area. In addition, we occupy one building of approximately 108,000 square feet in Chandler, Arizona.

We own eight buildings in San Jose, which include two manufacturing operations buildings, a research and development facility, an applications demonstration lab, various administrative and customer support offices, and our headquarters.

In the Portland area, we own four buildings in the city of Tualatin, located on 58 acres of owned land. One building totaling approximately 65,000 square feet includes manufacturing, research and development, and customer support for our ECD operations. The remaining three buildings totaling approximately 377,000 square feet consist of manufacturing, research and development, engineering and training facilities primarily for our PECVD operations.

Our Chandler facility consists of one building leased under an operating lease that expires in 2017. This building houses our CMP operations, including manufacturing, research and development and engineering.

We lease several domestic field offices totaling approximately 66,000 square feet of space. In addition, we own one building totaling approximately 41,000 square feet in the Chicago, Illinois area, which we obtained in conjunction with the SpeedFam-IPEC acquisition. We also sublease, or have available for sublease, approximately 778,000 square feet of space in and around the San Jose, California and Chandler, Arizona areas. We own and lease several sites outside of the United States, which we use as sales and customer service centers. These sites total approximately 171,000 square feet of space, of which approximately 11,000 square feet are owned.

Our European offices occupy approximately 21,000 square feet of leased space in various countries throughout Europe, including France, Germany, Italy, and Ireland. In addition, we own one office of approximately 9,000 square feet in Leicestershire, England. Our Asian offices occupy approximately 141,000 square feet of leased space in various countries throughout Asia, including China, India, Japan, Korea, Malaysia, Singapore and Taiwan.

We believe that our current facilities are sufficient to meet our requirements for the foreseeable future.

Item 3. ***Legal Proceedings***

Applied Materials, Inc.

On June 13, 1997, we agreed to purchase the Thin Film Systems (TFS) business of Varian Associates, Inc. On the same day, Applied Materials, Inc. sued Varian in the United States District Court for the Northern District of California for alleged patent infringement concerning several of its physical vapor deposition, or PVD, patents (the Applied Patents).

On June 23, 1997, we sued Applied in the United States District Court for the Northern District of California, claiming infringement by Applied of several of our PVD patents acquired from Varian in the TFS purchase. Applied has filed counterclaims in this suit, alleging that we infringed the Applied Patents. We are seeking an injunction against future infringement by Applied, damages for past infringement and treble damages for alleged willful infringement.

On July 7, 1997, Applied amended its complaint in its suit against Varian to add Novellus as a defendant. We have requested that the Court dismiss us as a defendant in this suit. The Court has not yet ruled on the request or required us to file an answer in this lawsuit.

The relief requested by Applied in both suits includes a permanent injunction against future infringement, damages for alleged past infringement and treble damages for alleged willful infringement. Trial is currently set to commence on May 24, 2004. Applied has recently indicated, however, that it will not be seeking any relief against us in this trial.

We believe that we have meritorious claims against Applied. We also believe that there are meritorious defenses to Applied's allegations, including the defense that our operations and products (including TFS products and systems) do not infringe the Applied Patents, and that the Applied Patents are invalid, unenforceable or both. As a result of court rulings adverse to Applied, and in light of certain indemnity obligations undertaken by Varian, which include reimbursement of certain legal expenses and a portion of any losses incurred from this litigation, we do not believe that Applied's claims will have a material adverse effect on our business, financial condition or results of operations.

Semitool, Inc.

On June 11, 2001, Semitool, Inc. sued Novellus for patent infringement in the United States District Court for the District of Oregon. In this lawsuit, Semitool alleges that Novellus infringes one of Semitool's patents related to copper electroplating. Semitool seeks an injunction against future infringement by Novellus, damages for past infringement, and treble damages for alleged willful infringement.

On November 13, 2001, we countersued Semitool for patent infringement in the United States District Court for the District of Oregon. We allege that Semitool infringes certain Novellus patents related to copper electroplating. We seek an injunction against Semitool, damages for past infringement, and treble damages for willful infringement by Semitool.

The Court has issued claim construction orders regarding all of the patents-in-suit, and discovery has closed. The Court has not yet ruled on any of the motions for summary judgment submitted by Semitool against the Novellus patents. The case is presently scheduled to proceed to trial in November of 2004. We believe that we have meritorious claims against Semitool and meritorious defenses to Semitool's claims against us, and that this litigation will not have a material adverse impact on our business, financial condition, or results of operations. However, the outcome of patent disputes is often affected by uncertainty in the resolution of complex issues of fact and law. If Semitool were to prevail against us, the adverse effect on our business, financial condition, or results of operations could be material.

Plasma Physics Corporation and Solar Physics Corporation

On June 14, 2002, certain of our present and former customers — including Agilent Technologies, Inc., Micron Technology, Inc., Agere Systems, Inc., National Semiconductor Corporation, Koninklijke Philips Electronics N.V., Texas Instruments, Inc., ST Microelectronics, Inc., LSI Logic Corporation, International Business Machines Corporation, Conexant Systems, Inc., Motorola, Inc., Advanced Micro Devices, Inc. and Analog Devices Inc. — were sued for patent infringement by Plasma Physics Corporation and Solar Physics Corporation. We have not been sued by Plasma Physics, Solar Physics, or any other party for infringement of any Plasma Physics or Solar Physics patent. Certain defendants in the case, however, contend that we allegedly have indemnification obligations and liability relating to these lawsuits. We believe that these matters will not have a material adverse impact on our business, financial condition, or results of operations. There can be no assurance, however, that we will prevail in the above lawsuit or in any other lawsuit filed in connection with the alleged indemnification obligations. If one or more parties were to prevail against us in such a suit and damages were awarded, the adverse impact on our business, financial condition, or results of operations could be material.

Linear Technology Corporation

On March 12, 2002, Linear Technology Corporation filed a complaint against Novellus, among other parties, in the Superior Court of the State of California for the County of Santa Clara. The complaint sought damages (including punitive damages) and injunctions for causes of actions involving alleged breach of contract, fraud, unfair competition, breach of warranty, and declaratory relief. We filed a demurrer to Linear's

complaint, which the court granted on April 11, 2003, with leave to amend. On May 2, 2003, Linear filed a second amended complaint. We filed a demurrer to Linear's second amended complaint, which the court granted on August 14, 2003, with leave to amend. On September 15, 2003, Linear filed a third amended complaint. We filed a demurrer to Linear's third amended complaint, which the court granted on January 15, 2004, with leave to amend. Linear has not yet filed another complaint.

This litigation is in its early stages and is therefore inherently difficult to assess. We believe that this litigation will not have a material adverse impact on our business, financial condition, or results of operations. However, the outcome of patent disputes is often affected by uncertainty in the resolution of complex issues of fact and law. If Linear were to prevail against us, the adverse effect on our business, financial condition, or results of operations could be material.

Employment Litigation

On April 4, 2003, Thomas Graziani, et al. filed a class action lawsuit against Novellus in the United States District Court for the District of Oregon. On August 1, 2003, David Robinson, et al. filed a class action lawsuit against Novellus in the United States District Court for the Northern District of California, San Jose Division. Both lawsuits seek collective and/or class action status for field service engineers who work for Novellus and both lawsuits allege that field service engineers are entitled to compensatory damages in the form of overtime pay, liquidated damages, interest and attorneys' fees and costs. We are currently engaged in mediation with the plaintiffs in these actions. At a mediation held on March 1, 2004, the parties to both lawsuits agreed to a settlement to be documented on or before April 2, 2004. As of the date of this Annual Report on Form 10-K, there is no written agreement binding the parties. Moreover, the settlement requires court approval, which may or may not be received. Approval is expected to be sought in the second quarter of 2004. Because the settlement has not yet been documented or approved and because members of the class may be permitted to opt out of the class and file individual claims, we are unable to determine the total amount or a range of amounts for the settlement at this time. If efforts to settle these lawsuits are not successful, we intend to vigorously defend against them.

Other Litigation

We are a defendant or plaintiff in various actions that arose in the normal course of business. We believe that the ultimate disposition of these matters will not have a material adverse effect on our business, financial condition or results of operations.

Item 4. ***Submission of Matters to a Vote of Security Holders***

Not applicable.

PART II

Item 5. ***Market for Registrant's Common Equity and Related Shareholder Matters***

Stock Information

Novellus' common stock is traded on the NASDAQ Stock Market and is quoted on the NASDAQ National Market under the symbol "NVLS." The following table sets forth the high and low prices of our common stock as reported by the NASDAQ National Market for the periods indicated:

2003	High	Low
First Quarter	$34.74	$25.27
Second Quarter	38.53	26.28
Third Quarter	40.85	33.32
Fourth Quarter	45.03	33.60

2002	High	Low
First Quarter	$54.48	$36.18
Second Quarter	54.45	29.69
Third Quarter	34.56	19.61
Fourth Quarter	38.09	19.40

We have not paid cash dividends on our common stock since inception, and our Board of Directors presently plans to reinvest our earnings in the business. Accordingly, it is anticipated that no cash dividends will be paid to holders of common stock in the foreseeable future. As of March 5, 2004, there were 994 holders of record of our common stock.

Item 6. ***Selected Financial Data***

Set forth below is a summary of certain consolidated financial information with respect to Novellus as of the dates and for the periods indicated. The consolidated statements of operations data set forth below for the five years ended December 31, 2003 and the consolidated balance sheet data at each year end for the five years ended December 31, 2003 have been derived from our consolidated financial statements, which have been audited. We acquired GaSonics on January 10, 2001, in a transaction accounted for as a pooling-of-interests. The selected financial data includes the operating results and financial data of Novellus and GaSonics for all periods. We acquired SpeedFam-IPEC on December 6, 2002, in a transaction accounted for as a purchase business combination. The selected financial data includes the operating results and financial data of SpeedFam-IPEC from December 6, 2002.

Selected Consolidated Financial Data

	Years Ended December 31,				
	2003	2002	2001	2000[6]	1999
	(in thousands, except per share data)				
Consolidated Statements of Operations Data:					
Net sales	$ 925,070	$ 839,958	$1,339,322	$1,319,486	$ 657,021
Gross profit	380,000[2]	378,523	691,351	730,893	351,839
Income (loss) before cumulative effect of change in accounting principle	(5,034)	22,920	144,470	239,168	68,707
Cumulative effect of change in accounting principle	(62,780)[1]	—	—	(89,788)	—
Net income (loss)	$ (67,814)[2]	$ 22,920[3,4]	$ 144,470[3,5]	$ 149,380	$ 68,707
Per common share:					
Income (loss) before cumulative effect of change in accounting principle					
Basic	$ (0.03)	$ 0.16	$ 1.01	$ 1.76	$ 0.56
Diluted	$ (0.03)	$ 0.15	$ 0.97	$ 1.66	$ 0.54
Cumulative effect of change in accounting principle, net of tax					
Basic	(0.42)	—	—	$ (0.66)	—
Diluted	(0.42)	—	—	$ (0.62)	—
Net income (loss)					
Basic	$ (0.45)	$ 0.16	$ 1.01	$ 1.10	$ 0.56
Diluted	$ (0.45)	$ 0.15	$ 0.97	$ 1.04	$ 0.54
Shares used in basic per share calculations	150,680	144,371	142,462	135,728	122,261
Shares used in diluted per share calculations	150,680	148,748	148,924	143,654	127,826
Pro forma amounts with the change in accounting principle related to revenue recognition applied retroactively: (unaudited)[6]					
Net revenues	—	—	—	—	$ 582,397
Net income	—	—	—	—	$ 39,550
Net income per share:					
Basic	—	—	—	—	$ 0.32
Diluted	—	—	—	—	$ 0.31

December 31,	2003	2002	2001	2000	1999
Consolidated Balance Sheet Data:					
Cash, cash equivalents and short-term investments	$1,002,132	$1,019,652	$ 921,822	$1,219,664	$ 413,014
Working capital	1,350,906	1,252,324	1,395,902	1,410,836	646,063
Total assets	2,338,900	2,493,994	3,031,124	2,205,474	1,000,352
Long-term obligations	—	—	—	—	—
Shareholders' equity	2,071,860	2,055,688	1,871,994	1,641,475	837,537

(1) As a result of the early adoption of Financial Accounting Standards Board Interpretation No. 46, "Consolidation of Variable Interest Entities, an Interpretation of ARB No. 51," we recorded a non-cash charge of $62.8 million, net of tax, for the year ended December 31, 2003, as a cumulative effect of a change in accounting principle from the consolidation of properties previously accounted for as synthetic leases.

(2) We recorded $59.8 million of pre-tax charges for the year ended December 31, 2003 as a result of a restructuring plan to align our cost structure with business conditions. The charges consisted of an inventory write-down of $44.0 million, asset write-offs of $7.9 million, facilities charges of $4.1 million, and severance of $3.8 million. In addition, we recorded a charge for litigation settlements of $2.7 million.

(3) We adopted Statement of Financial Accounting Standards No. 142, "Goodwill and Other Intangible Assets," or SFAS No. 142, in the first quarter of 2002. As a result of its adoption, we no longer amortize goodwill, which resulted in an increase in net income of $3.6 million for the year ended December 31, 2002. Retroactive application of SFAS No. 142 would have resulted in an increase in net income for the year ended December 31, 2001 of $3.5 million, or $0.02 per diluted share. Amortization of goodwill was not material in years shown prior to 2001.

(4) We recorded $32.5 million of pre-tax charges for the year ended December 31, 2002 associated with restructuring and severance activities of $6.5 million, write-off of debt issuance costs of $17.0 million, and an acquired in-process research and development charge relating to the acquisition of SpeedFam-IPEC of $9.0 million. Additionally, we recorded a pre-tax benefit of $12.3 million for the year ended December 31, 2002 associated with the recovery of a previously written off receivable of $7.7 million and a gain on the sale of an equity investment of $4.6 million.

(5) We recorded $84.5 million of pre-tax charges for the year ended December 31, 2001. These charges include $55.0 million related to restructuring and asset impairment, $13.2 million of costs related to the GaSonics acquisition, $8.6 million for an other than temporary decline in the value of an investment, and $7.7 million of a bad debt write-off.

(6) We recorded a non-cash charge of $89.8 million, after reduction for income taxes of $48.6 million, or $0.62 per diluted share, to reflect the cumulative effect of a change in accounting principle as of January 1, 2000 related to the adoption of the Securities and Exchange Commission Staff Accounting Bulletin No. 101, "Revenue Recognition in Financial Statements." If the change in accounting principle had been applied retroactively to 1999, net sales would have been $582.4 million. Net income for the year ended December 31, 2000 also included a $6.0 million pre-tax charge for acquired in-process research and development associated with GaSonics' acquisition of Gamma Precision Technology.

Item 7. *Management's Discussion and Analysis of Financial Condition and Results of Operations*

Introduction

The following Management's Discussion and Analysis of Financial Condition and Results of Operations (MD&A) is intended to provide readers with an understanding of the Company. The following are included in our MD&A:

- Overview of our Business and Industry;
- Results of Operations;
- Critical Accounting Policies;
- Liquidity and Capital Resources;
- Off-Balance Sheet Arrangements;
- Contractual Obligations;
- Related Parties;
- Recent Accounting Pronouncements;
- Forward-Looking Statements; and
- Risk Factors

Overview of Our Business and Industry

Novellus is a global supplier of equipment used in the fabrication of integrated circuits. We develop, manufacture, sell and service equipment used by manufacturers of integrated circuits, or chips, who either incorporate the chips in their own products or sell the chips to other companies for use in electronic devices. Our goal is to use our expertise to increase our market share and strengthen our position as a leading supplier of semiconductor processing equipment by providing our customers with highly reliable products which help them reduce costs, increase productivity and remain competitive.

Our business depends on capital expenditures made by chip manufacturers, who in turn are dependent on corporate and consumer demand for chips and the devices which use them. Since the industry in which we operate is driven by spending for electronic products, our business is directly affected by growth or contraction in the global economy as well as by the adoption of new technologies. Demand for personal computers, the expansion of the Internet and telecommunications industries, and the emergence of new applications in consumer electronics have a direct impact on our business. In addition, the industry is characterized by intense competition and rapidly changing technology. During the recent global recession, we continued to work closely with our customers and make substantial investments in research and development in order to continue delivering innovative products which enhance productivity for our customers and utilize the latest technology. We believe these investments have positioned us for growth in the coming year.

We focus on certain key quarterly financial data to manage our business. Net sales, gross profit, net income (loss) and net income (loss) per share are the primary measures we use to monitor performance. Net orders are used to forecast and plan future operations. The following table sets forth certain quarterly and annual financial information for the periods indicated:

	Quarterly Financial Data				
	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Year Ended December 31,
2003:					
Net sales	$238,410	$239,050	$221,099	$226,511	$ 925,070
Gross profit	109,814	105,322	58,776	106,088	380,000
Net income (loss)	11,872	7,430	(97,568)	10,452	(67,814)
Diluted net income (loss) per share	0.08	0.05	(0.64)	0.07	(0.45)
Net orders	241,825	198,759	220,775	275,219	936,578
2002:					
Net sales	169,679	222,147	230,495	217,637	839,958
Gross profit	71,530	101,564	109,382	96,047	378,523
Net income	3,836	12,013	4,083	2,988	22,920
Diluted net income per share	0.03	0.08	0.03	0.02	0.15
Net orders	170,304	275,888	202,409	219,434	868,035
2001:					
Net sales	458,705	376,899	303,687	200,031	1,339,322
Gross profit	254,985	199,624	140,138	96,604	691,351
Net income (loss)	82,102	59,221	(14,019)	17,166	144,470
Diluted net income (loss) per share	0.55	0.40	(0.10)	0.12	0.97
Net orders	209,751	212,490	124,044	110,189	656,474

The semiconductor equipment industry is subject to cyclical conditions which play a major role in the fluctuations in demand, as defined by net orders. These fluctuations, in turn, affected our net sales over the past three years. A decline in net orders for semiconductor equipment began in early 2001 and continued through 2002. While we have experienced a modest increase from 2002, demand was weak through the first

three quarters of 2003. Net orders during the first three quarters of 2003 were sequentially volatile with a 10% increase in the first quarter, an 18% decrease in the second quarter, and an 11% increase in the third quarter, reflecting uncertainty in the demand for semiconductor devices. In the fourth quarter of 2003, we experienced a 25% sequential increase in net orders. The net order growth in the fourth quarter was driven primarily by strengthening demand for corporate and consumer electronic devices, which resulted in an increase in our customers' capacity utilization. In addition, we experienced increased demand as a result of our customers' transition to 300mm fabrication equipment. We believe the increase in demand for our products during the fourth quarter of 2003 could be an indication of an industry recovery.

The receipt of net orders in a particular quarter affects revenue in subsequent quarters. Net orders turn to revenue either at shipment or upon customer acceptance of the equipment. Our revenue recognition policy addresses the distinction between revenue recognized upon shipment and revenue recognized upon customer acceptance. Equipment generally ships within two or three months of receiving the related order and if applicable, customer acceptance is typically received six to eight months after shipment. These time lines are general estimates and actual times may vary depending on specific customer circumstances.

Demand for our systems can vary significantly from period to period as a result of several factors, including, but not limited to, downturns in the economy and semiconductor industry, supply of and demand for semiconductor devices, and competition in the semiconductor industry among suppliers of similar products. For these and other reasons, our results of operations for fiscal years 2001, 2002 and 2003 may not necessarily be indicative of future operating results.

Results of Operations
(dollars in thousands, except per share amount)

Net Sales

	Years Ended December 31,			% Change in 2003	% Change in 2002
	2003	2002	2001		
Net Sales	$925,070	$839,958	$1,339,322	10%	(37)%

The increase in net sales of $85.1 million, or 10%, from 2002 to 2003 was primarily due to slightly improved market conditions during 2003, driven mainly by increased volume. The increase in volume was a result of increased capital spending by our customers as demand for semiconductor devices began to increase.

The decrease in net sales of $499.4 million, or 37%, from 2001 to 2002 was primarily a result of reduced volume due to a substantial reduction in customer capital spending in response to weakened worldwide demand for semiconductor devices. The demand for semiconductor manufacturing equipment has historically fluctuated with changes in the supply of and demand for semiconductor devices and other factors, including rapid technological advances in semiconductor manufacturing processes. Although net orders grew by $211.6 million, or 32%, to $868.0 million in 2002 from $656.4 million in 2001, net sales decreased. We experienced unprecedented demand for our equipment in 2000 and therefore, at the end of 2000 and prior to the industry-wide downturn in early 2001, we had a substantial amount of backlog, which shipped in the early part of 2001 and accounted for a significant portion of our net sales for that year.

Geographical net sales as a percentage of total net sales were as follows (based on the location of the customers' facilities):

	Years Ended December 31,		
	2003	2002	2001
North America	35%	39%	45%
Europe	10%	7%	7%
Asia	55%	54%	48%

The increase in net sales in Europe and Asia as a percentage of total net sales during 2003 was attributable to higher demand in Japan, Korea, and Europe, partially offset by lower demand in Taiwan and

China. A significant portion of our net sales is generated in Asia, primarily due to the fact that a substantial portion of the world's semiconductor manufacturing capacity is located there. We plan to continue to focus on expanding our market presence in Asia as we believe that significant additional growth potential exists in this region over the long term.

Gross Profit

	Years Ended December 31,			% Change	% Change
	2003	2002	2001	in 2003	in 2002
Gross profit	$380,000	$378,523	$691,351	0.4%	(45)%
% of net sales	41%	45%	52%		

The decline in gross profit as a percentage of net sales in 2003 compared to 2002 is due primarily to a $44.0 million write-down of inventory in 2003, changes in product mix, and continued low absorption of our manufacturing overhead costs. In the third quarter of 2003, we experienced a sustained shift in our customers' order patterns from 200mm to 300mm equipment, which resulted in reduced demand for our 200mm equipment. Furthermore, the levels of required spares inventory were reduced due to a streamlining of our worldwide spares distribution system. These changes resulted in a portion of our inventory becoming excess or obsolete and led to a $44.0 million write-down of inventory. The prolonged weakness in demand for semiconductor capital equipment has also continued to negatively affect our gross margin as we have continued to experience low absorption of our fixed overhead costs.

The decline in gross profit as a percentage of net sales in 2002 compared to 2001 was primarily due to reduced absorption of fixed overhead costs resulting from lower production and shipments. During 1999 and 2000, and through our acquisition of GaSonics in January 2001, we expanded our manufacturing facilities to accommodate the unprecedented growth in demand for semiconductor manufacturing equipment. As a result of the industry downturn and overall slowing economy that began in 2001 and continued through 2002, net orders for our equipment were low and we continued to have low absorption of our fixed overhead costs related to the facilities in those periods. The 2001 gross profit was reduced by a $7.1 million charge associated with the write-off of inventory related to two products, which we discontinued in connection with our 2001 restructuring plan. The gross profit in 2001 was also impacted by a benefit of $4.4 million related to our decision not to pay our bonuses and profit sharing because we did not meet the minimum performance guidelines required for these payments.

Our gross profit from period to period is affected by the treatment of certain product sales in accordance with Securities and Exchange Commission (SEC) Staff Accounting Bulletin (SAB) No. 104, "Revenue Recognition," or SAB 104, which superseded the earlier related guidance in SAB No. 101, "Revenue Recognition in Financial Statements," or SAB 101. For these sales, we recognize all of a product's cost upon shipment even though a portion of a product's revenue may be deferred until final payment is due, typically upon customer acceptance.

Selling, General and Administrative (SG&A)

	Years Ended December 31,			% Change	% Change
	2003	2002	2001	in 2003	in 2002
SG&A	$165,618	$154,172	$198,567	7%	(22)%
% of net sales	18%	18%	15%		

SG&A expense includes compensation and benefits for corporate, financial, marketing, and administrative personnel as well as travel expenses and professional fees. Also included are expenses for rents, utilities, and depreciation and amortization related to the assets utilized by these functions.

As a percentage of net sales, SG&A expense in 2003 is consistent with 2002. The increase in absolute dollars for the year ended December 31, 2003 is primarily due to higher salaries and litigation costs in 2003, the expense resulting from the operations of SpeedFam-IPEC for the full year, and increased depreciation

expense as a result of our early adoption of FIN 46 and subsequent purchase of properties previously accounted for as synthetic leases during the third quarter of 2003.

The increase in SG&A expense as a percentage of net sales in 2002 over 2001 was primarily due to a substantial reduction in net sales in 2002 as compared to 2001. The decrease in absolute dollars reflects the impact of the cost reduction measures that we implemented in the second half of 2001, which contributed to cost savings in 2002. These cost reduction measures included executive and employee salary reductions and the consolidation of our facilities. In addition, we had workforce reductions in the first and fourth quarter of 2002.

Research and Development (R&D)

	Years Ended December 31,			% Change in 2003	% Change in 2002
	2003	2002	2001		
Research and development	$227,439	$222,344	$272,032	2%	(18)%
% of net sales	25%	26%	20%		

R&D expense includes compensation and benefits for our research and development personnel, project materials, chemicals and other direct expenses incurred in product and technology development. Also included are expenses for equipment repairs and maintenance, rents, utilities, depreciation, and amortization expense associated with patents and purchased technologies. Our significant investments in R&D over the past several years reflect our strong commitment to the continuous improvement of our current product lines and the development of new products and technologies. Despite the prolonged downturn in the industry and weakened demand for semiconductor equipment, we continue to believe that significant investment in R&D is required to remain competitive, and we plan to continue to invest in new products and enhancement of our current product lines.

As a percentage of net sales, R&D expense in 2003 remained relatively flat compared to 2002. The increase in absolute dollars in 2003 is primarily due to additional spending related to the continuing development of CMP technologies, which were acquired through the acquisition of SpeedFam-IPEC in December 2002, and higher depreciation expense as a result of our early adoption of FIN 46 and subsequent purchase of properties previously accounted for as synthetic leases during the third quarter of 2003.

The increase in R&D expense as a percentage of net sales in 2002 over 2001 was primarily due to a substantial reduction in net sales in 2002 compared to 2001. The increase reflected our continued commitment to the development of new products and technologies to provide competitive cost advantages for our customers.

Acquired In-Process Research and Development (IPR&D)

	Years Ended December 31,			% Change in 2003	% Change in 2002
	2003	2002	2001		
IPR&D	$ —	$ 9,003	$ —	(100)%	100%
% of net sales	—	1%	—		

In connection with the acquisition of SpeedFam-IPEC in December 2002, we recorded a $9.0 million charge to write-off certain acquired IPR&D in 2002. Projects which qualify as IPR&D had not yet reached technological feasibility and had no alternative future use. Technological feasibility is defined as being equivalent to completion of a beta-phase working prototype in which there is no significant remaining risk relating to the development.

The value assigned to IPR&D was determined by considering the importance of each project to the overall development plan, estimating costs to develop the acquired IPR&D into commercially viable products, estimating the resulting net cash flows from the projects when completed and discounting the net cash flows to their present value. The revenue estimates used to value the purchased IPR&D were based on estimates of

relevant market sizes and growth factors, expected trends in technology and the nature and expected timing of new product introductions by SpeedFam-IPEC and its competitors.

The rates utilized to discount the net cash flows to their present value were based on a weighted-average cost of capital determined by examining market information for several comparable companies. The weighted-average cost of capital was adjusted to reflect the difficulties and uncertainties in completing each project and thereby achieving technological feasibility, the percentage of completion of each project, anticipated market acceptance and penetration, market growth rates and risks related to the impact of potential changes in future target markets. Based on these factors, a discount rate of 25% was deemed appropriate for valuing the IPR&D. The estimates used in valuing IPR&D were based upon assumptions believed to be reasonable but which are inherently uncertain and unpredictable. As a result, actual results may differ materially from our estimates.

Restructuring and Other Charges

	Years Ended December 31,			% Change in 2003	% Change in 2002
	2003	2002	2001		
Restructuring and other charges	$18,529	$6,467	$61,106	187%	(89)%
% of net sales	2%	1%	5%		

The $18.5 million restructuring and other charges for the year ended December 31, 2003 consisted of $7.9 million for asset write-offs (including fixed assets and purchased technology), $4.1 million for vacated facilities, $3.8 million for severance, and $2.7 million for legal settlements. The asset write-offs, facilities charges, and severance charges were recorded in connection with activities undertaken to align our cost structure with current business conditions.

Restructuring and other charges in 2002 consisted of $1.5 million related to vacated facilities and $5.0 million of severance benefits for workforce reductions. In 2001, we implemented a restructuring plan and recorded restructuring and asset impairment charges of $47.9 million and acquisition costs of $13.2 million related to the acquisition of GaSonics. The restructuring and asset impairment charges included $33.8 million related to vacated facilities, $9.5 million related to abandoned assets associated with the discontinuation of certain projects and $4.6 million related to a write-off of abandoned purchased technology. The discontinuation of two products resulted in a $7.1 million inventory write-down in 2001, which is included in cost of sales for that year.

The charge for vacated facilities relates to rent obligations after the abandonment of certain facilities currently under long-term operating lease agreements. When applicable, anticipated future sublease income related to the vacated buildings has been offset against the charge for the remaining lease payments. Additionally, certain fixed assets, including leasehold improvements, associated with the abandoned facilities that had no future economic benefit have been written off. Substantially all actions under the restructuring plans had been achieved as of December 31, 2003, except for future rent obligations of $50.5 million, which are to be paid in cash through year 2017. For further discussion, see Note 8 to the Consolidated Financial Statements.

The restructuring plans reduced our expenses by approximately $11.5 million in 2003, of which $10.2 million relates to savings from vacated facilities and $1.3 million relates to savings from workforce reductions. We estimate cost savings related to facilities of approximately $9.1 in 2004 resulting from the restructuring plans implemented prior to 2004. The 2001 restructuring saved us approximately $38.8 million of expenses in fiscal 2002, of which, $9.8 million relates to savings from vacated facilities and $29.0 million relates to savings from workforce reductions.

Bad Debt Write-off (Recovery)

	Years Ended December 31,			% Change in 2003	% Change in 2002
	2003	2002	2001		
Bad debt write-off (recovery)	$ —	$(7,662)	$7,662	100%	(200)%
% of net sales	—	(1)%	1%		

In September 2001, an outstanding account receivable balance was at risk for collection because the customer was facing financial difficulties, payment was overdue and overall industry conditions continued to deteriorate. Accordingly, we recorded a write-off of $7.7 million. However, in the first quarter of 2002, all amounts owed under this account receivable balance were collected, resulting in a benefit to operations of $7.7 million.

Other Income, net

	Years Ended December 31,			% Change in 2003	% Change in 2002
	2003	2002	2001		
Other income, net	$16,266	$28,721	$57,393	(43)%	(50)%
% of net sales	2%	3%	4%		

Other income, net, includes interest income, interest expense and other non-operating income and expenses. The decrease in other income, net, in 2003 from 2002 is attributable to lower interest income resulting from declining interest rates on interest-bearing investments and a change in accounting related to properties previously accounted for under synthetic leases. The change in synthetic lease accounting reduced our interest income by approximately $3.0 million for the year ended December 31, 2003. In the first quarter of 2003, we also recorded a loss of $0.6 million related to the redemption of the SpeedFam-IPEC convertible subordinated notes.

The decrease in other income, net, as a percentage of net sales and in absolute dollars, in 2002 from 2001 was partially due to a decrease in interest income. The decrease in interest income was primarily due to a continued decline in interest rates and a decrease in interest-bearing investments after we used $880.0 million of restricted investments to retire our Liquid Yield Option Notes™, or LYONS, in the third quarter of 2002. We also recorded a non-cash charge of $17.0 million for the write-off of unamortized issuance costs related to the retirement of the LYONs in the third quarter of 2002. The decrease in other income in 2002 was partially offset by a $4.6 million gain on the sale of an equity investment.

Provision (Benefit) for Income Taxes

The provision (benefit) for income taxes reflects an effective tax rate of (67%) in 2003, zero percent in 2002 and 31% in 2001. The effective tax rate benefit in 2003 was higher than in 2002 as a result of the combined benefit of the net operating loss and tax credit carryforwards. The effective tax rate in 2002 was lower than in 2001 as a result of the larger benefits from tax credits in relation to lower profitability. Management believes the benefits of the net operating loss and tax credit carryforwards will be realized due to anticipated future taxable income. Our future effective income tax rate depends on various factors, such as the company's profits (losses) before taxes, tax legislation, the geographic composition of pre-tax income and non-deductible expenses incurred in connection with acquisitions.

Critical Accounting Policies

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires that we make estimates and judgments that affect the reported amounts of assets, liabilities, revenues and expenses and the related disclosure of contingent assets and liabilities. On an ongoing basis, we evaluate our estimates, including those related to revenue recognition, inventory valuation, goodwill and other intangible assets, deferred tax assets, warranty obligations and restructuring and impairment charges. We base our estimates on historical experience and on various other assumptions that are believed to be reasonable under the current circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions. We believe the following critical accounting policies affect the more significant judgments and estimates used in the preparation of our consolidated financial statements.

Revenue Recognition

We recognize revenue in accordance with SAB 104, which superseded the earlier related guidance in SAB 101. We recognize revenue when persuasive evidence of an arrangement exists, delivery has occurred or services have been rendered, the seller's price is fixed or determinable, and collectibility is reasonably assured.

Certain of our product sales are accounted for as multiple-element arrangements. A multiple-element arrangement is a transaction which may involve the delivery or performance of multiple products, services, or rights to use assets, and performance may occur at different points in time or over different periods of time. If we have met defined customer acceptance experience levels with both the customer and the specific type of equipment, we recognize equipment revenue upon shipment and transfer of title, with the remainder generally recognized at the later of completion of the installation services or customer acceptance.

Installation services are not essential to the functionality of the delivered equipment. We allocate revenue based on the residual method as a fair value has been established for installation services. However, since final payment is not typically due until customer acceptance, we defer revenue for the final payment, which is in excess of the fair value of the installation services. All other equipment sales are recognized upon customer acceptance.

Revenue related to sales of spare parts is recognized upon shipment. Revenue related to maintenance and service contracts is recognized ratably over the duration of the contracts. Unearned maintenance and service contract revenue is included in other accrued liabilities.

Inventory Valuation

We periodically assess the recoverability of all inventories, including raw materials, work-in-process, finished goods, and spare parts, to determine whether adjustments for impairment are required. Inventory that is obsolete or in excess of our forecasted usage is written down to its estimated realizable value based on assumptions about future demand and market conditions. If actual demand is lower than our forecast, additional inventory write-downs may be required.

Goodwill and Other Intangible Assets

We account for goodwill and other intangible assets in accordance with Statement of Financial Accounting Standards No. 142, "Goodwill and Other Intangible Assets," or SFAS No. 142. SFAS No. 142 requires that goodwill and identifiable intangible assets with indefinite useful lives no longer be amortized, but instead be tested for impairment at least annually. SFAS No. 142 also requires that intangible assets with estimable useful lives be amortized over their respective estimated useful lives to their estimated residual values, and reviewed for impairment in accordance with SFAS No. 144, "Accounting for the Impairment or Disposal of Long-Lived Assets."

We review our long-lived assets, including goodwill and other intangible assets, for impairment at least annually or whenever events or changes in circumstances indicate that the carrying amount of these assets may not be recoverable. According to our policy, we completed goodwill impairment tests in the third and fourth quarters of 2003. The test performed in the third quarter was completed in connection with our restructuring plan implemented in that quarter. Our annual goodwill impairment test was completed in the fourth quarter. The first step of the test identifies when impairment may have occurred, while the second step of the test measures the amount of the impairment, if any. The results of our impairment tests did not indicate impairment.

Deferred Tax Assets

We record a valuation allowance to reduce our deferred tax assets to the amount that is more likely than not to be realized. As of December 31, 2003, we had approximately $168.5 million of deferred tax assets, net of a valuation allowance of $76.5 million principally related to acquired net operating loss carryforwards and foreign tax credits that are not realizable until 2006 and beyond. The valuation allowance includes $38.0 million related to acquired deferred tax assets of SpeedFam-IPEC which will be credited to goodwill

when realized and $26.5 million related to stock option deductions which will be credited to equity when realized. Management believes the majority of deferred tax assets will be realized due to anticipated future income. We have considered future taxable income and ongoing prudent and feasible tax planning strategies in assessing the need for the valuation allowance. If in the future we determine that we would not be able to realize all or part of our net deferred tax assets, an increase to the valuation allowance for deferred tax assets would decrease income in the period in which such determination is made.

Warranty Obligations

Our warranty policy generally states that we will provide warranty coverage for a predetermined amount of time on systems and modules for material and labor to repair and service the equipment. We record the estimated cost of warranty coverage to cost of sales upon system shipment. The estimated cost of warranty is determined by the warranty term, as well as the average historical labor and material costs for a specific product. Should actual product failure rates or material usage differ from our estimates, revisions to the estimated warranty liability may be required. These revisions could have a positive or negative impact on gross profit. We review the actual product failure rates and material usage rates on a quarterly basis and adjust our warranty liability as necessary.

Restructuring and Impairment Charges

Restructuring activities initiated prior to December 31, 2002 were recorded in accordance with Emerging Issues Task Force Issue No. 94-3, "Liability Recognition for Certain Employee Termination Benefits and Other Costs to Exit an Activity (Including Certain Costs Incurred in a Restructuring)," and restructuring activities after December 31, 2002 were recorded under the provisions of SFAS No. 146, "Accounting for Costs Associated with Exit or Disposal Activities," or SFAS No. 146; SFAS No. 112, "Employers' Accounting for Postemployment Benefits;" and SAB 100, "Restructuring and Impairment Charges." SFAS No. 146 requires that a liability for costs associated with an exit or disposal activity be recognized when the liability is incurred, rather than when the exit or disposal plan is approved.

We account for business combination restructurings under the provisions of EITF Issue No. 95-3, "Recognition of Liabilities in Connection with a Purchase Business Combination" and SAB 100. Accordingly, restructuring accruals are recorded when management initiates an exit plan that will cause us to incur costs that have no future economic benefit. Certain restructuring charges related to long-lived asset impairments are recorded in accordance with SFAS No. 144. The restructuring accrual related to vacated facilities is calculated net of estimated sublease income. Sublease income is estimated based on current market quotes for similar properties and expected occupancy dates. If we are unable to sublet these vacated properties as forecasted, if we are forced to sublet them at rates below our current estimates due to changes in market conditions, or if we change our sublease income estimate, we adjust the restructuring accruals accordingly.

Foreign Currency Accounting

The local currency is the functional currency for all foreign operations. Accordingly, translation gains or losses related to our foreign subsidiaries are included as a component of accumulated other comprehensive income (loss).

Foreign Exchange Contracts

We conduct portions of our business in various foreign currencies. Forward foreign exchange contracts are used to hedge against the short-term impact of foreign currency fluctuations on intercompany accounts payable denominated in U.S. dollars recorded by our Japanese subsidiary. We also enter into forward foreign exchange contracts to buy and sell foreign currencies to hedge our intercompany balances denominated in a currency other than the U.S. dollar. In 2003 and 2002, these hedging contracts were denominated primarily in the Japanese Yen, Taiwanese Dollar, and Korean Won. The forward foreign exchange contracts we use are generally short-term in nature. The effect of exchange rate changes on forward foreign exchange contracts is expected to offset the effect of exchange rate changes on the underlying hedged items. We believe these

financial instruments do not subject us to speculative risk that would otherwise result from changes in currency exchange rates. Net foreign currency gains and losses for effective and ineffective hedges have not been material to our results of operations.

Liquidity and Capital Resources

We have historically financed our operating and capital resource requirements through cash flows from operations, sales of equity securities and borrowings. Our primary source of funds as of December 31, 2003 consisted of approximately $1,002.1 million of cash, cash equivalents and short-term investments. This amount represents a decrease of $17.5 million from the December 31, 2002 balance of $1,019.7 million. The decrease was due primarily to the repayment of the SpeedFam-IPEC convertible subordinated notes at a redemption price of $117.1 million, plus accrued interest of $2.2 million, and capital expenditures of $31.1 million. The decrease was partially offset by positive cash generated from operations of $43.1 million, proceeds from the issuance of common stock in connection with stock option exercises of $75.7 million, and net borrowings under lines of credit of $10.2 million.

Net cash provided by operating activities for the year ended December 31, 2003 was $43.1 million. The primary sources of cash from operating activities were net income, as adjusted to exclude non-cash charges and benefits and changes in working capital accounts. The changes in working capital accounts include a decrease in prepaid and other current assets of $22.5 million, a decrease in inventories of $9.8 million, an increase in accounts receivable of $38.9 million, and the combined effect of decreases in accounts payable, accrued payroll and related expenses, income tax payable, deferred profit and other accrued liabilities of $70.7 million. The decrease in prepaid and other current assets was primarily attributable to an $18.5 million income tax refund received in the first quarter of 2003.

Net cash used in investing activities in the year ended December 31, 2003 was $129.3 million, which consisted primarily of capital expenditures of $31.1 million and net purchases of short-term investments of $101.9 million, offset by a decrease in other assets of $3.7 million. A significant amount of the $31.1 million of capital expenditures relates to our new Enterprise Resource Management (ERM) system. As of December 31, 2003, we did not have any significant commitments to purchase property and equipment, except for additional capital expenditures of approximately $2.7 million required to complete the implementation of our new ERM system. However, we expect to expend additional resources in the future to enhance the functionality of our ERM system.

Net cash used in financing activities for the year ended December 31, 2003 was $32.5 million, which is primarily due to the repayment of the SpeedFam-IPEC convertible subordinated notes at a redemption price of $117.1 million, partially offset by proceeds from employee stock compensation plans of $75.7 million and net lines of credit borrowings of $10.2 million.

On February 24, 2004, our board of directors renewed a stock repurchase program originally approved in September 2001. Under the repurchase program, we may repurchase up to $500 million of our outstanding common stock through February 13, 2007.

We believe that our current cash position, cash generated through operations and equity offerings, and available borrowings will be sufficient to meet our needs through at least the next twelve months.

Off-Balance Sheet Arrangements

Variable Interest Entities

In January 2003, the Financial Accounting Standards Board, or FASB, issued FASB Interpretation No. 46, "Consolidation of Variable Interest Entities, an Interpretation of ARB No. 51," or FIN 46. FIN 46 requires variable interest entities to be consolidated by the primary beneficiary of the entity. An entity is considered a variable interest entity if the equity investors in the entity do not have the characteristics of a controlling financial interest or do not have sufficient equity at risk for the entity to finance its activities without additional subordinated financial support from other parties. FIN 46 is effective for all new variable interest entities created or acquired after January 31, 2003. For variable interest entities created or acquired

prior to February 1, 2003, the provisions of FIN 46 were to be applied at the end of periods ending after June 15, 2003. In October 2003, the FASB issued a FASB Draft Position on FIN 46, delaying the effective date of FIN 46 to periods ending after December 15, 2003, but encouraging early adoption. We early-adopted FIN 46 on June 29, 2003.

Pursuant to the guidelines of FIN 46, we concluded that the lessor in our synthetic leases was a variable interest entity and that we were the primary beneficiary of the variable interest entity. As such, we were required to consolidate the variable interest lessor beginning on June 29, 2003. Additionally, since each of the other lessees involved with this lessor had a variable interest in specified assets and liabilities of the variable interest lessor, we were only required to consolidate the specific assets, liabilities, and operating results associated with our synthetic leases. As a result of the early adoption of FIN 46, we recorded a non-cash charge of approximately $62.8 million, net of tax, in the third quarter of fiscal 2003 as a cumulative effect of a change in accounting principle in accordance with Accounting Principles Board Opinion No. 20, "Accounting Changes." The gross charge represents approximately $95.8 million of pre-tax depreciation that would have been recorded had we consolidated these assets from inception of the leases. As a result of the adoption of FIN 46 and the exercise of our option to purchase the properties subject to the synthetic leases in September 2003, property and equipment increased on a net basis by approximately $360.6 million and notes receivable and other non-current assets decreased by $456.4 million. The purchase of these properties in September 2003 eliminated our interest in the variable interest entity.

The consolidation of the variable interest entities and subsequent purchase of the facilities previously accounted for as synthetic leases increased our depreciation expense by approximately $8.5 million per quarter and decreased both our rent expense and interest income by approximately $3.0 million per quarter from historical levels, which decreased our quarterly earnings per share by approximately $0.04. The adoption of FIN 46 and the exercise of our purchase option had no impact on our liquidity.

Standby Letters of Credit

We provide standby letters of credit to certain parties as required for certain transactions we initiated during the ordinary course of business. As of December 31, 2003, the maximum potential amount of future payments that we could be required to make under these letters of credit was approximately $4.8 million. We have not recorded any liability in connection with these arrangements beyond that required to appropriately account for the underlying transaction being guaranteed. We do not believe, based on historical experience and information currently available, that it is probable that any amounts will be required to be paid under these arrangements.

Guarantee Arrangements

We also have additional guarantee arrangements on behalf of certain of our consolidated subsidiaries. These guarantee arrangements are for line-of-credit borrowings, overdrafts and operating leases. The available credit facilities with various financial institutions total $31.3 million. These credit facilities bear interest at various rates, expire on various dates through December 2004 and are used for general corporate purposes. As of December 31, 2003, our subsidiaries had $13.0 million outstanding under the lines of credit at an annual weighted-average interest rate of 1.2%, which, on a consolidated basis, we will be required to repay. In the event of default of these facilities by our subsidiaries, such arrangements would be guaranteed by us to a maximum exposure of $29.9 million as of December 31, 2003. As of December 31, 2002, amounts outstanding under these lines of credit were $2.8 million, at an annual weighted-average interest rate of 1.4%.

In addition, certain subsidiaries have lease arrangements, which we guarantee. These leases will expire between 2004 and 2010. In the event that our subsidiaries do not make the required payments, we could be required to pay the leases on their behalf. The annual lease obligations under these arrangements are included in our consolidated minimum lease payments table below. As of December 31, 2003, we have not recorded any liability related to guarantees of subsidiary obligations. Based on historical experience and information currently available to us, we do not expect that it is probable any amounts will be required to be paid under these guarantee arrangements.

Contractual Obligations

We have non-cancelable operating leases for various facilities. Rent expense was approximately $13.1 million, $10.4 million and $16.9 million for the years ended December 31, 2003, 2002 and 2001, respectively, net of sublease income of $7.9 million, $7.4 million and $7.2 million, respectively. Certain of the operating leases contain renewal options, at our discretion, at the end of the lease terms.

The following is a table summarizing future minimum lease payments under all non-cancelable operating leases, with initial or remaining terms in excess of one year. We had no other significant commitments as of December 31, 2003 (in thousands):

	Years Ending December 31,						Sublease Income	Net Total
	2004	2005	2006	2007	2008	Thereafter		
Non-cancelable operating leases	$14,042	$13,188	$11,644	$6,982	$7,082	$46,781	$(21,147)	$78,572

Purchase orders or contracts for the purchase of raw materials and other goods and services are not included in the table above. Based upon the agreements with our manufacturing suppliers, we do not have firm purchase commitments. However, in order to reduce our manufacturing lead times and ensure adequate levels of inventory on hand, we place cancelable orders based upon our build forecasts. We are not able to determine the aggregate amount of such purchase orders that represent contractual obligations, as purchase orders may represent authorizations to purchase rather than binding agreements. For the purposes of this table, contractual obligations for purchase of goods or services are defined as agreements that are enforceable and legally binding on Novellus and that specify all significant terms, including: fixed or minimum quantities to be purchased; fixed, minimum or variable price provisions; and the approximate timing of the transaction. Our purchase orders generally contain clauses allowing for cancellation without significant penalty. In the event we modify or cancel open orders with our manufacturing suppliers, we could be required to reimburse the suppliers for all or for a portion of the order amount in accordance with the terms of our contractual agreements. Our policy with respect to all purchase commitments is to record losses, if any, when they are probable and reasonably estimable. We have made adequate provision for potential exposure related to inventory on order which may go unused.

Related Parties

In March 2002, we began leasing an aircraft from NVLS I, LLC, a third-party entity wholly owned by Richard S. Hill, our Chairman and Chief Executive Officer. Under the aircraft lease agreement, we incurred lease expense of $0.8 million and $0.2 million for the years ended December 31, 2003 and 2002, respectively.

A member of our Board of Directors, D. James Guzy, is also a member of the Board of Directors of Intel Corporation, which is one of our significant customers. Intel Corporation represented approximately 12%, 11% and 16% of net sales for the years ended December 31, 2003, 2002 and 2001, respectively. Intel Corporation also accounted for 6% and 18% of our accounts receivable as of December 31, 2003 and 2002, respectively.

From time to time we have made secured and unsecured relocation loans to our executive officers, vice presidents and key personnel. As of December 31, 2003, we do not have any outstanding loans to our executive officers as defined by the Securities and Exchange Commission. However, we do have outstanding loans to certain non-executive vice presidents and key personnel. As of December 31, 2003 and 2002, the total outstanding balance of loans to non-executive vice presidents and key personnel was approximately $5.7 million and $6.0 million, respectively. Of the amount outstanding at December 31, 2003, $4.8 million was secured by collateral. Excluding relocation loans, all other loans bear interest. We have not realized material bad debts related to the loans to our personnel.

Recent Accounting Pronouncements

In May 2003, the FASB, issued SFAS No. 150, "Accounting for Certain Financial Instruments with Characteristics of both Liabilities and Equity," or SFAS No. 150. SFAS No. 150 establishes standards for the classification and measurement of financial instruments with characteristics of both liabilities and equity.

SFAS No. 150 became effective for three types of financial instruments entered into or modified after May 31, 2003. The adoption of SFAS No. 150 does not have a material impact on our results of operations or financial condition.

Forward-Looking Statements

The following information should be read in conjunction with "Part I, Item 1. Business," "Part II, Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations," and "Part II, Item 8. Consolidated Financial Statements" and notes thereto included in this Annual Report. This Annual Report on Form 10-K and certain information incorporated herein by reference contain forward-looking statements within the "safe harbor" provisions of the Private Securities Litigation Reform Act of 1995. Forward-looking statements in this Annual Report on Form 10-K include, without limitation:

- Statements about the growth of the semiconductor industry; market size, share and demand (particularly demand for corporate and consumer electronic devices); product performance; our expectations, objectives, anticipations, intentions and strategies regarding the future; expected operating results, revenues and earnings; and current and potential litigation, which statements are subject to various uncertainties, including, without limitation, those discussed in "Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations — Risk Factors";
- The statements under the heading "Item 1. Business" concerning (1) the semiconductor industry's migration to the use of copper and low-k dielectrics and (2) the growing importance of the surface preparation and CMP manufacturing steps, which statements are subject to various risks and uncertainties, including, without limitation, the failure of our expectations regarding the future direction of the semiconductor industry and our failure to combine the recently-acquired product offerings of GaSonics International Corporation and SpeedFam-IPEC, Inc. with our offerings;
- The statements under the heading "Item 1. Business — Industry Background" regarding our beliefs that (1) unit demand for semiconductor devices will continue to increase; (2) the next generation of chips will likely see line widths as small as 90 nanometers and below; (3) there will be a transition from aluminum to copper conductive material; (4) there will be a transition from silicon oxide films to low-k dielectric insulators; and (5) there is a trend toward larger wafer sizes, which statements are subject to various risks and uncertainties, including, without limitation, periodic downturns in the semiconductor industry, slowdowns in the rate of capital investment by semiconductor manufacturers, shifts in demand from expensive, high-performance products to lower priced, conventional products, and the failure of our expectations regarding the future direction of the semiconductor industry;
- The statements under the heading "Item 1. Business — Strategy," concerning (1) our objective to increase our market share in the interconnect manufacturing market and strengthen our position as a leading supplier of semiconductor processing equipment; (2) our emphasis on high-productivity systems; (3) our focus on reducing customer costs; (4) our service differentiation philosophy; (5) our goal to lead in our target markets; (6) our goal to broaden our interconnect offerings; (7) our focus on major semiconductor manufacturers; (8) our intention to expand our market presence in Asia; and (9) our intention to leverage our low cost manufacturing structure, which statements are subject to various risks and uncertainties, including, without limitation, shifts in demand from expensive, high-performance products to lower priced, conventional products, resulting in reduced profit for semiconductor manufacturers, the current and other periodic downturns in the semiconductor industry and the economy in general, slowdowns in the rate of capital investment by semiconductor manufacturers and future product developments, introductions by competitors, increased competition in the semiconductor equipment industry, and risks and uncertainties associated with international operations, including economic downturns, trade balance issues, political instability, banking issues, fluctuations in interest and foreign currency exchange rates, and slower economic development in Asia;
- The statements under the heading "Item 1. Business — Products" of our beliefs regarding our products, including (1) that Concept Two enables increased production throughput and system

capability; (2) that Concept Three offers greater throughput in 300mm wafer-manufacturing applications; (3) that Concept Three SPEED offers minimal risk to our customers in making the transition from 200mm to 300mm volume chipmaking; (4) that Concept Two ALTUS is ideal for meeting the requirements of high-volume, automated 200mm wafer fabs producing semiconductor devices at 0.18 micron and below; (5) that the INOVA 200mm system will continue to gain market acceptance based on barrier seed step coverage performance; (6) that the 300mm INOVA xT with Hollow Cathode Magnetron or HCM will continue to offer superior barrier performance; (7) that our Electrofill products are highly reliable and cost-effective; (8) the increasing importance of photoresist strip and clean processes; (9) that IRIDIA offers the highest productivity of any 200 mm dry-clean system currently on the market; (10) that the opportunity to integrate and optimize the planarization, deposition and surface preparation steps gives us an important advantage in extending copper/low-k processes to advanced semiconductor devices; and (11) that MOMENTUM allows for maximum manufacturing flexibility, which statements are subject to various risks and uncertainties, including, among others, the inaccuracy of our assessment of the capabilities of our products, the greater financial, marketing, technical or other resources, broader product lines, greater customer service capabilities and larger and more established sales organizations and customer bases that some of our competitors possess, future competition from new market entrants our competitors' improvement of the design and performance of their products that may offer superior price or performance features over our products, and difficulties in selecting, developing, manufacturing and marketing our new products or enhancing our existing products;

- The statements under the heading "Item 1. Business — Marketing, Sales and Service" of our beliefs that (1) our strategy of supporting our installed base through customer support and R&D groups has accelerated penetration of certain key accounts; (2) our marketing efforts are enhanced by the technical expertise of our R&D personnel; and (3) our customer service is enhanced by the design simplicity of our systems, which statements are subject to certain risks and uncertainties, including, without limitation, that during periods of rapid growth, we may not be able to hire, assimilate and retain a sufficient number of qualified people and our failure to design simple, streamlined systems;
- Our statement under the heading "Item 1. Business — Research and Development" regarding our expectation that research and development expenditures will continue to represent a substantial percentage of sales, which statement is subject to certain risks and uncertainties, including, among others, that we may be unable to allocate substantial resources to research and development;
- The statements under the heading "Item 1. Business — Manufacturing" regarding (1) our belief that our outsourcing strategy enables us to minimize our fixed costs and capital expenditures while also providing the flexibility to increase capacity as needed and allows us to focus on product differentiation through system design and quality control; (2) our belief that the use of manufacturing specialists for our subsystems incorporate the most advanced technologies in robotics, gas panels and microcomputers; (3) our goal to work with suppliers to achieve mutual cost reduction through joint design efforts; and (4) our goal of reduced dependence on limited suppliers for certain key parts, which statements are subject to various risks and uncertainties, including, without limitation, the possible occurrence of a disruption or termination of certain limited source suppliers, our prolonged inability to obtain certain components our failure to work efficiently with supplies, and our inability to establish relationships with alternative suppliers of key parts;
- The statement under the heading "Item 1. Business — Competition" regarding our belief as to our favorable competitiveness in our market segments, which statement is subject to various risks and uncertainties, including, among others, the greater financial, marketing, technical or other resources, broader product lines, greater customer service capabilities and larger and more established sales organizations and customer bases that some of our competitors possess, future competition from new market entrants from overseas and domestic sources, our competitors' improvement of the design and performance of their products that may offer superior price or performance features as compared to our products, and our success in selecting, developing, manufacturing and marketing our new products or enhancing our existing products;

- The statements under the heading "Item 1. Business — Patents and Proprietary Rights" regarding our beliefs and intentions (1) to pursue the legal protection of our technology primarily through patent and trade secret protection; (2) to file additional patent applications; (3) to vigorously protect our intellectual property rights; (4) that the outcomes of current litigation will not have a material impact on our business; and (5) that in the future, litigation may be necessary to enforce patents issued to us, to protect trade secrets or know-how owned by us or to defend us against claimed infringement of the rights of others and to determine the scope and validity of the proprietary rights of others, which statements are subject to various risks and uncertainties, including, without limitation, the absence of assurance that patents will be issued from any of our pending applications or that any claims allowed from existing or pending patents will be sufficiently broad to protect our technology, the fact that litigation could result in substantial cost and diversion of our effort and the fact that adverse litigation determinations could result in a loss of our proprietary rights, subject us to significant liabilities to third parties, require us to seek licenses from third parties or prevent us from manufacturing or selling our products;

- The statements under the heading "Item 1. Business — Employees" that our success depends upon (1) our ability to recruit and retain engineers and technicians, marketing, sales, service and other key personnel and (2) the retention of a limited number of key employees and other members of our senior management, which statements are subject to risks and uncertainties, including, among others, our inability to successfully retain or recruit key personnel and our inability to effectively manage growth;

- The statement under the heading "Item 1. Business — Environmental Matters" that neither compliance with federal, state and local provisions regulating discharge of materials into the environment nor remedial agreements or other environmental actions is expected to have a material affect on our capital expenditures, financial condition, results of operations or competitive position, which statement is subject to various risks and uncertainties, including, among others, that we have inaccurately assessed the compliance requirements of environmental provisions;

- The statement under the heading "Item 2. Properties" of our belief that our current properties will be sufficient to meet our requirements for the foreseeable future is subject to various risks and uncertainties, including, without limitation, growth in net sales placing unexpected strains on our resources and properties;

- The statements under the headings "Item 3. Legal Proceedings" and "Item 8. Financial Statements and Supplementary Data — Notes to Consolidated Financial Statements — Note 11. Litigation" of our beliefs (1) that there are meritorious defenses in the Applied Materials, Inc., Semitool, Inc., Plasma Physics Corporation, Solar Physics Corporation and Linear Technology Corporation litigation matters, and (2) regarding the outcome of, and the impact on our business, financial condition, or results of operations of, the Applied, Semitool, Plasma Physics, Solar Physics and Linear Technology litigation matters, which statements are subject to various uncertainties, including, without limitation, our inability to accurately predict the determination of complex issues of fact and law;

- The statements under the heading "Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations — Critical Accounting Policies" regarding calculation of allowances, reserves, and other estimates that are based on historical experience, the judgment of management, and various other assumptions that are believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources, our beliefs about critical accounting policies, and the significant judgments and estimates used in the preparation of our consolidated financial statements, which statements are subject to certain risks, including, among others, the inaccuracy of our beliefs regarding critical accounting policies and that actual product failure rates, material usage, installation costs, customer reserves or other estimates may be different from our estimates, requiring revisions to the Company's estimated doubtful account allowances, additional inventory write-downs, restructuring charges, litigation, warranty, and other reserves;

- The statements under the heading "Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations — Results of Operations" of our strategies, beliefs, plans, expectations, anticipations and hopes with respect to Net Sales, Gross Profit, Selling, General and Administrative, Research and Development, Acquired In-Process Research and Development, Restructuring and Other Charges, Bad Debt (Recovery) Write-off, Other Income, net, Provision for Income Taxes, Deferred Tax Asset, Foreign Currency Accounting and Foreign Exchange Contracts including, without limitation, (1) our belief that an increase in demand for our products during the fourth quarter of 2003 could be an indication of the beginning of an industry recovery; (2) our plan to continue our R&D commitment to improvement of new products and enhancement of our current product lines; (3) our belief that significant investment in R&D is required to remain competitive; (4) our belief regarding an estimated cost savings of approximately $9.1 million in 2004 resulting from the restructuring plan implemented in 2003; (5) management's beliefs regarding the realization due to anticipated future taxable income of the benefits of the net operating loss and tax credit carryforwards; (6) management's beliefs regarding the realization of deferred tax assets; (7) the belief that our forward foreign exchange contracts do not subject us to speculative risk that would otherwise result from changes in currency exchange rates; and our strategies, beliefs, plans, expectations, anticipations and hopes with respect to Liquidity and Capital Resources set forth under "Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations — Liquidity and Capital Resources," including, without limitation, (1) our beliefs regarding the impact of the adoption of SFAS No. 150; (2) our belief that we will not be required to pay any amounts under standby letters of credit arrangements; (3) our belief that we will not be required to pay any amounts under additional guarantee arrangements on behalf of our consolidated subsidiaries; and (4) our belief that our current cash position, cash generated through operations and equity offerings, and available borrowings will be sufficient to meet our needs through at least the next twelve months, which statements are subject to numerous risks and uncertainties, including, without limitation, our inability to allocate substantial resources to R&D programs, the inaccuracy of our beliefs regarding taxes, foreign exchange contracts, the impact of certain accounting standards and our synthetic leases, that the semiconductor industry will continue to experience this or another periodic downturn, which could have a material adverse effect on the semiconductor industry's demand for semiconductor processing equipment, including equipment we manufacture and market, and our success in selecting, developing, manufacturing and marketing our new products, or enhancing our existing products;
- The statements under the heading "Item 7A. Quantitative and Qualitative Disclosures About Market Risk — Interest Rate Risk" that we believe that an immediate change to interest rates to variable short-term borrowings will not have a material effect on our results, and under the heading "Item 7A. Quantitative and Qualitative Disclosures About Market Risk — Foreign Currency Risk" that we do not anticipate using options to hedge anticipated and uncommitted transactions to minimize the impact of foreign currency fluctuations on our results of operations, are subject to the risk, among other risks, that we have inaccurately assessed our future borrowing needs; and
- The statements in "Item 8. Financial Statements and Supplementary Data — Notes to Consolidated Financial Statements — Note 2. Significant Accounting Policies — Concentration of Credit and Other Risks" that (1) we believe that the effects of applying SFAS No. 123 on pro forma disclosures are not likely to be representative of the effects on pro forma disclosures of future years; and (2) we do not believe that there is a significant risk of nonperformance by counterparties on foreign exchange contracts are subject to the risk, among other risks, that we may fail to continuously monitor our positions and the credit ratings of counterparties; and our statement in "Item 8. Financial Statements and Supplementary Data — Notes to Consolidated Financial Statements — Note 6. Goodwill and Other Intangible Assets" that we believe our estimated amortization expense for the identifiable intangible assets for each of the next five years will be approximately $2.9 million per year is subject to the risk that we have inaccurately assessed our amortization expense due to unforeseen future events or non-events.

Risk Factors

Set forth below and elsewhere in this Annual Report on Form 10-K, including in Item 7. Management's Discussion and Analysis, and in other documents we file with the Securities and Exchange Commission, are risks and uncertainties that could cause actual results to differ materially from the results contemplated by the forward-looking statements contained in this Annual Report.

Cyclical Downturns in the Semiconductor Industry

Our business depends predominantly on the capital expenditures of semiconductor manufacturers, which in turn depend on current and anticipated market demand for integrated circuits and the products that use them. The semiconductor industry has historically been very cyclical and has experienced periodic downturns that have had a material adverse effect on the demand for semiconductor processing equipment, including equipment that we manufacture and market. During periods of reduced and declining demand, we must be able to quickly and effectively align our costs with prevailing market conditions, as well as motivate and retain key employees. In particular, our inventory levels during periods of reduced demand have at times reached higher-than-necessary levels relative to the current levels of production demand. We cannot provide any assurance that we may not be required to make inventory valuation adjustments in future periods. During periods of rapid growth, we must be able to acquire and/or develop sufficient manufacturing capacity to meet customer demand, and hire and assimilate a sufficient number of qualified people. We cannot give assurances that our net sales and operating results will not be adversely affected if the current downturn in the semiconductor industry continues, or if other downturns or slowdowns in the rate of capital investment in the semiconductor industry occur in the future.

The Semiconductor Industry is Intensely Competitive and Capital-Intensive

We face substantial competition in the industry, from both potential new market entrants as well as established competitors. Some companies may have greater financial, marketing, technical or other resources than we do, as well as broader product lines, greater customer service capabilities, or larger and more established sales organizations and customer bases. Remaining competitive in the market depends in part upon our ability to develop new and enhanced systems and to introduce them at competitive prices on a timely basis. Our customers must incur substantial expenditures to install and integrate capital equipment into their semiconductor production lines. Once a manufacturer has selected a vendor's capital equipment for a particular product line, the manufacturer is likely to continue with the selected equipment vendor for that specific application at that location. Accordingly, we may experience difficulty in selling a product to a particular customer for a significant period of time after that customer has selected a competitor's product. In addition, sales of our systems depend in significant part upon a prospective customer's decision to increase or expand manufacturing capacity — both of which typically involve a significant capital commitment. From time to time, we have experienced delays in finalizing system sales following initial system qualification. Due to these and other factors, our systems typically have a lengthy sales cycle, during which we may expend substantial funds and management effort.

Rapidly Changing Technology

We devote a significant portion of our personnel and financial resources to research and development programs, and we seek to maintain close relationships with our customers in order to remain responsive to their product needs. As is typical in the semiconductor capital equipment market, we have experienced delays from time to time in the introduction of and certain technical and manufacturing difficulties with certain of our products and product enhancements. In addition, we may experience delays and technical and manufacturing difficulties in future introductions or volume production of our new systems or enhancements.

Our success in developing, introducing and selling new and enhanced systems depends upon a variety of factors, including product selection, timely and efficient completion of product design and development and implementation of manufacturing and assembly processes, product performance in the field, and effective sales and marketing. There can be no assurance that we will be successful in selecting, developing, manufacturing

and marketing new products, or in enhancing our existing products. In addition, we could incur substantial unanticipated costs to ensure the functionality and reliability of our future product introductions early in their product life cycles. If new products have reliability or quality problems, reduced orders, or higher manufacturing costs, delays in collecting accounts receivable and additional service and warranty expenses may result. Any of these events could materially adversely affect our business, financial condition or results of operations.

International Operations

Export sales currently account for a significant portion of our net sales. This trend is expected to continue in the foreseeable future. As a result, a significant portion of our sales is subject to certain risks, including, but not limited to:

- Tariffs and other trade barriers;
- Challenges in staffing and managing foreign operations;
- Difficulties in managing foreign distributors;
- Potentially adverse tax consequences;
- Imposition of legislation and regulations relating to the import or export of semiconductor products, either by the United States or other countries;
- Periodic economic downturns;
- Political instability; and
- Fluctuations in interest and foreign currency exchange rates, creating the need to enter into forward foreign exchange contracts to hedge against the short-term impact of foreign currency fluctuations, specifically yen-denominated transactions.

There can be no assurance that any of these factors or the adoption of restrictive policies will not have a material adverse effect on our business, financial condition or results of operations. In addition, each region in the global semiconductor equipment market exhibits unique market characteristics that can cause capital equipment investment patterns to vary significantly from period to period. We derive a substantial portion of our revenues from customers in Asia. Any negative economic developments in Asia could result in the cancellation or delay by Asian customers of orders for our products, which could adversely affect our business, financial condition or results of operations.

Variability of Quarterly Operating Results

We have experienced and expect to continue experiencing significant fluctuations in our quarterly operating results. These fluctuations are due to a number of factors that include, but are not limited to:

- Building our systems according to forecast, and not using limited backlog information, which hinders our ability to plan production and inventory levels;
- Failure to receive anticipated orders in time to permit shipment during the quarter;
- Customers rescheduling or canceling shipments;
- Manufacturing difficulties;
- Customers deferring orders of our existing products due to new product announcements by us and/or our competitors;
- Overall business conditions in the semiconductor equipment industry; and
- Variations in quarterly operating results or changes in analysts' earnings estimates which may subject the price of our common stock to wide fluctuations and possible rapid increases or decreases in a short time period.

Acquisitions

We have made—and may in the future make—acquisitions of or significant investments in businesses with complementary products, services and/or technologies. Acquisitions involve numerous risks, including, but not limited to:

- Difficulties in integrating the operations, technologies, products and personnel of acquired companies;
- Lack of synergies or the inability to realize expected synergies;
- Revenue and expense levels of acquired entities differing from those anticipated at the time of the acquisitions;
- Difficulties in managing geographically dispersed operations;
- The potential loss of key employees, customers and strategic partners of acquired companies;
- Diversion of management's attention from normal daily operations of the business; and
- The impairment of acquired intangible assets as a result of technological advancements, or worse-than-expected performance of acquired companies.

Acquisitions are inherently risky, and we cannot provide any assurance that our previous or future acquisitions will be successful. The inability to effectively manage the risks associated with previous or future acquisitions could materially and adversely affect our business, financial condition or results of operations.

A Large Portion of Net Sales is Derived from Sales to a Few Customers

We currently sell a significant proportion of our systems in any particular period to a limited number of customers, and we expect that sales of our products to relatively few customers will continue to account for a high percentage of our net sales in the foreseeable future. In addition, we believe that sales to certain of our customers will decrease in the near future as they complete current purchasing requirements for new or expanded fabrication facilities. Although the composition of the group comprising our largest customers varies from year to year, the loss of a significant customer or any reduction in orders from any significant customer — including reductions due to customer departures from recent buying patterns, as well as economic or competitive conditions in the semiconductor industry — could adversely affect our business, financial condition or results of operations.

Intellectual Property

We intend to continue to seek legal protection, primarily through patents and trade secrets, for our proprietary technology. There can be no assurance that patents will be issued from any pending applications, or that any claims allowed from existing or pending patents will be sufficiently broad to protect our proprietary technology. There is also no guarantee that any patents we hold will not be challenged, invalidated or circumvented, or that the rights granted thereunder will provide competitive advantages to us. We also cannot provide assurance that the confidentiality agreements we enter into with employees, consultants and other parties will not be breached.

We are currently involved in a number of legal disputes regarding patent and other intellectual property rights. Except as set forth in Part II: Other Information, Item 1: Legal Proceedings in this document, we are not aware of any significant claim of infringement by our products of any patent or proprietary rights of others. Adverse outcomes in current or future legal disputes could result in the loss of our proprietary rights, subject the company to significant liabilities to third parties, require us to seek licenses from third parties, or prevent us from manufacturing or selling our products. Any of these circumstances could have a material adverse effect on our business, financial condition or results of operations.

Supply Shortages

We use numerous suppliers to obtain parts, components and sub-assemblies for the manufacture and support of our products. Although we make reasonable efforts to ensure that such parts are available from multiple suppliers, certain key parts may only be obtained from a single or limited sources. These suppliers are in some cases thinly capitalized, independent companies who derive a significant amount of their business from us and/or a small group of other companies in the semiconductor industry. We seek to reduce our dependence on this limited group of suppliers. However, disruption or termination of certain of these suppliers may occur. Such disruptions could have an adverse effect on our operations. A prolonged inability to obtain certain parts could have a material adverse effect on our business, financial condition or results of operations, and could result in our inability to meet customer demands on time.

Third-Party Indemnification

From time to time, in the normal course of business, we indemnify third parties with whom we enter into contractual relationships, including customers, lessors, and parties to other transactions with us, with respect to certain matters. We have agreed, under certain conditions, to hold these third parties harmless against specified losses, such as those arising from a breach of representations or covenants, other third party claims that our products when used for their intended purposes infringe the intellectual property rights of such other third parties or other claims made against certain parties. It is not possible to determine the maximum potential amount of liability under these indemnification obligations due to our limited history of prior indemnification claims and the unique facts and circumstances that are likely to be involved in each particular claim. Historically, payments made by us under these obligations have not been material.

Item 7A. *Quantitative and Qualitative Disclosures About Market Risk*

Interest Rate Risk

Our exposure to market risk for changes in interest rates relates primarily to our investment portfolio and short-term debt obligations. We do not use derivative financial instruments in our investment portfolio. We place our investments with high credit quality issuers and, by policy, limit the amount of credit exposure with any one issuer.

We mitigate default risk by investing in only the safest and highest credit quality securities and by monitoring the credit rating of investment issuers. The portfolio includes only marketable securities with active secondary or resale markets to ensure portfolio liquidity. We have no material cash flow exposure due to rate changes for cash equivalents and short-term investments.

The majority of our short-term obligations have fixed interest rates. Therefore, our results are only affected by the interest rate changes to variable rate short-term borrowings. Due to the short-term nature of these borrowings, an immediate change to interest rates is not expected to have a material effect on our results.

The table below presents principal amounts and related weighted average interest rates by year of maturity for our investment portfolio and debt obligations and the fair value of each as of December 31, 2003 and 2002. All of our available-for-sale investments and debt securities mature within two years from the original purchase or issuance date.

	Periods of Maturity			Fair Value December 31,
	2004	2005	Total	2003
	(Dollars in thousands)			
Assets:				
Cash equivalents	$497,178	$ —	$ 497,178	$ 497,178
Average interest rate	1.05%	—	1.05%	
Short-term investments	$411,216	$93,738	$ 504,954	$ 504,954
Average interest rate	1.35%	1.71%	1.42%	
Restricted investments	$ 2,861	$ —	$ 2,861	$ 2,861
Average interest rate	1.03%	—	1.03%	
Total investment securities	$911,255	$93,738	$1,004,993	$1,004,993
Average interest rate	1.19%	1.71%	1.24%	
Liabilities:				
Short-term borrowings	$ 13,023	$ —	$ 13,023	$ 13,023
Average interest rate	1.20%	—	1.20%	

	Periods of Maturity			Fair Value December 31,
	2003	2004	Total	2002
	(Dollars in thousands)			
Assets:				
Cash equivalents	$ 615,844	$ —	$ 615,844	$ 615,844
Average interest rate	1.36%	—	1.36%	
Short-term investments	$ 385,793	$18,015	$ 403,808	$ 403,808
Average interest rate	2.04%	1.92%	2.03%	
Restricted investments	$ 58,995	$ —	$ 58,995	$ 58,995
Average interest rate	0.32%	—	0.32%	
Total investment securities	$1,060,632	$18,016	$1,078,648	$1,078,648
Average interest rate	1.55%	1.92%	1.55%	
Liabilities:				
Short-term borrowings	$ 119,236	$ —	$ 119,236	$ 119,236
Average interest rate	6.14%	—	6.14%	

Foreign Currency Risk

We transact business in various foreign countries. Our primary foreign currency cash flows are in Asia and Europe. During 2003 and 2002, we utilized foreign currency forward exchange contracts to hedge foreign currency-denominated balance sheet positions. Under this program, increases or decreases in currency commitments and balance sheet positions, as translated into U.S. dollars, were primarily offset by realized gains and losses on the hedging instruments. Our subsidiary, SpeedFam-IPEC, used currency options contracts to hedge a portion of the anticipated and uncommitted transactions that were expected to be denominated in foreign currencies. Upon the maturity of these contracts, we do not anticipate using options to hedge anticipated and uncommitted transactions. The goal of the hedging program is to minimize the impact of foreign currency fluctuations on our results of operations. We do not use foreign currency forward exchange contracts for speculative or trading purposes.

All of our unsettled foreign currency contracts are marked-to-market, with unrealized gains and losses included as a component of other income and expense. The following table provides information as of December 31, 2003 and 2002 about our derivative financial instruments, which are comprised of predominantly foreign currency forward exchange contracts. The information is provided in U.S. dollar equivalent amounts, as presented in our consolidated financial statements. The table below presents the notional amounts (at the contract exchange rates), the weighted-average contractual foreign currency exchange rates, and the estimated fair value of those contracts.

	December 31, 2003		
	Notional Amount (Buy) Sell	Average Contract Rate	Estimated Fair Value-Gain (Loss)
	(In thousands, except for average contract rate)		
Foreign currency forward exchange contracts:			
Japanese yen	$ 34,991	111.56	$(3,026)
British pound	(4,346)	0.57	11
Euro	(8,136)	0.81	8
Singapore dollar	(7,410)	1.71	(4)
Taiwanese dollar	(10,868)	33.95	(23)
Korean won	(9,627)	1,193.30	38
	$ (5,396)		$(2,996)

	December 31, 2002		
	Notional Amount (Buy) Sell	Average Contract Rate	Estimated Fair Value-Gain (Loss)
	(In thousands, except for average contract rate)		
Foreign currency forward exchange contracts:			
Japanese yen	$ 18,460	118.33	$ 817
British pound	(4,140)	0.64	(8)
Euro	(2,417)	0.99	3
Singapore dollar	(4,563)	1.76	(7)
Taiwanese dollar	(21,957)	34.86	72
Korean won	(7,914)	1,215.25	21
Chinese yuan	(493)	8.27	—
	$(23,024)		$ 898

Item 8. ***Financial Statements and Supplementary Data***

NOVELLUS SYSTEMS, INC.

CONSOLIDATED STATEMENTS OF OPERATIONS

	Years Ended December 31,		
	2003	2002	2001
	(In thousands, except per share data)		
Net sales	$ 925,070	$ 839,958	$1,339,322
Cost of sales	545,070	461,435	647,971
Gross profit	380,000	378,523	691,351
Operating expenses:			
Selling, general and administrative	165,618	154,172	198,567
Research and development	227,439	222,344	272,032
Acquired in-process research and development	—	9,003	—
Restructuring and other charges	18,529	6,467	61,106
Bad debt write-off (recovery)	—	(7,662)	7,662
Total operating expenses	411,586	384,324	539,367
Operating income (loss), net	(31,586)	(5,801)	151,984
Other income (expense):			
Interest income	17,272	41,851	64,297
Interest expense	(909)	(1,020)	(1,146)
Other, net	(97)	(12,110)	(5,758)
Other income, net	16,266	28,721	57,393
Income (loss) before provision (benefit) for income taxes and cumulative effect of a change in accounting principle	(15,320)	22,920	209,377
Provision (benefit) for income taxes	(10,286)	—	64,907
Income (loss) before cumulative effect of a change in accounting principle	(5,034)	22,920	144,470
Cumulative effect of a change in accounting principle, net of tax	(62,780)	—	—
Net income (loss)	$ (67,814)	$ 22,920	$ 144,470
Net income (loss) per share:			
Basic			
Income (loss) before cumulative effect of a change in accounting principle	$ (0.03)	$ 0.16	$ 1.01
Cumulative effect of a change in accounting principle	(0.42)	—	—
Basic net income (loss) per share	$ (0.45)	$ 0.16	$ 1.01
Diluted			
Income (loss) before cumulative effect of a change in accounting principle	$ (0.03)	$ 0.15	$ 0.97
Cumulative effect of a change in accounting principle	(0.42)	—	—
Diluted net income (loss) per share	$ (0.45)	$ 0.15	$ 0.97
Shares used in basic per share calculations	150,680	144,371	142,462
Shares used in diluted per share calculations	150,680	148,748	148,924

See accompanying Notes to the Consolidated Financial Statements.

NOVELLUS SYSTEMS, INC.

CONSOLIDATED BALANCE SHEETS

	December 31,	
	2003	2002
	(In thousands)	
ASSETS		
Current assets:		
Cash and cash equivalents	$ 497,178	$ 615,844
Short-term investments	504,954	403,808
Accounts receivable, net of allowance for doubtful accounts of $7,655 in 2003 and $7,339 in 2002	231,760	192,862
Inventories	199,100	257,358
Deferred tax assets, net	126,901	119,699
Prepaid and other current assets	12,095	44,363
Total current assets	1,571,988	1,633,934
Property and equipment, net	506,567	179,926
Notes receivable	—	397,429
Goodwill	173,267	163,136
Intangible and other assets	87,078	119,569
Total assets	$2,338,900	$2,493,994
LIABILITIES AND SHAREHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 53,537	$ 71,218
Accrued payroll and related expenses	25,197	36,748
Accrued warranty	28,805	31,002
Other accrued liabilities	43,406	53,723
Income taxes payable	10,293	14,070
Deferred profit	46,821	55,613
Current obligations under lines of credit	13,023	2,799
Convertible subordinated debentures	—	116,437
Total current liabilities	221,082	381,610
Deferred income tax liabilities	—	19,502
Other liabilities	45,958	37,194
Total liabilities	267,040	438,306
Commitments and contingencies		
Shareholders' equity:		
Preferred stock, no par value; authorized shares — 10,000; issued and outstanding shares — none	—	—
Common stock, no par value; authorized shares — 240,000; issued and outstanding shares — 152,899 in 2003 and 149,119 in 2002	1,565,926	1,487,281
Retained earnings	501,362	570,153
Accumulated other comprehensive income (loss)	4,572	(1,746)
Total shareholders' equity	2,071,860	2,055,688
Total liabilities and shareholders' equity	$2,338,900	$2,493,994

See accompanying Notes to the Consolidated Financial Statements.

NOVELLUS SYSTEMS, INC.

CONSOLIDATED STATEMENTS OF CASH FLOWS

	Years Ended December 31,		
	2003	2002	2001
		(In thousands)	
Cash flows from operating activities:			
Net income (loss)	$ (67,814)	$ 22,920	$ 144,470
Adjustment to reconcile net income (loss) to net cash provided by operating activities:			
Write-off of debt issuance costs	616	17,047	—
(Gain) loss on sale/impairment of equity investments	—	(4,602)	8,556
Cumulative effect of a change in accounting principle	62,780	—	—
Non-cash portion of restructuring and other charges	51,895	—	25,501
Bad debt write-off (recovery)	—	(7,662)	7,662
Adjustment to conform fiscal year end of GaSonics	—	—	1,714
Depreciation and amortization	69,570	44,310	51,934
Amortization of deferred compensation	3,329	1,626	1,451
Acquired in-process research and development	—	9,003	—
Income tax benefits from employee stock plans	—	19,427	25,037
Changes in operating assets and liabilities:			
Accounts receivable	(38,898)	58,341	167,713
Inventories	9,824	19,912	(50,079)
Deferred income taxes	(14,677)	3,346	55,860
Prepaid and other current assets	22,535	42,706	(66,511)
Accounts payable	(17,588)	(4,021)	(55,706)
Accrued payroll and related expenses	(11,551)	(2,809)	(36,000)
Accrued warranty	(2,197)	(13,599)	(8,006)
Other accrued liabilities	(12,772)	(11,995)	11,073
Income taxes payable	(3,116)	6,186	(54,502)
Deferred profit	(8,792)	14,778	(153,078)
Net cash provided by operating activities	43,144	214,914	77,089
Cash flows from investing activities:			
Purchases of short-term investments	(1,600,519)	(2,028,463)	(2,293,771)
Proceeds from sales and maturities of short-term investments	1,498,644	2,956,991	1,599,183
Capital expenditures	(31,135)	(26,776)	(79,965)
Decrease (increase) in intangible and other assets	3,690	9,407	(7,443)
Increase in synthetic lease collateral	—	(177,458)	(244,673)
Cash acquired from SpeedFam-IPEC acquisition, net	—	43,462	—
Net cash provided (used in) by investing activities	(129,320)	777,163	(1,026,669)
Cash flows from financing activities:			
Proceeds (repayments) from convertible subordinated debentures	(117,053)	(879,750)	862,400
Proceeds from employee stock compensation plans	75,651	54,434	45,469
Proceeds (repayments) from lines of credit, net	10,224	(23,380)	4,577
Repurchases of common stock	(1,312)	(78,177)	(1,641)
Net cash provided (used in) by financing activities	(32,490)	(926,873)	910,805
Net increase (decrease) in cash and cash equivalents	(118,666)	65,204	(38,775)
Cash and cash equivalents at the beginning of the year	615,844	550,640	589,415
Cash and cash equivalents at the end of the year	$ 497,178	$ 615,844	$ 550,640
Supplemental disclosures:			
Cash paid (received) during the year for:			
Interest	$ 909	$ 204	$ 1,146
Income taxes, net	$ 6,321	$ (63,329)	$ 63,201
Non-cash financing activities:			
Issuance of common stock and stock options related to SpeedFam-IPEC acquisition, net of deferred compensation of $3,104	$ —	$ 166,736	$ —
Subordinated debt assumed from SpeedFam-IPEC acquisition	$ —	$ 116,437	$ —

See accompanying Notes to the Consolidated Financial Statements.

NOVELLUS SYSTEMS, INC.

CONSOLIDATED STATEMENTS OF SHAREHOLDERS' EQUITY

	Common Stock		Retained Earnings	Accumulated Other Comprehensive Income (Loss)	Total Shareholders' Equity
	Shares	Amount			
			(In thousands)		
Balance at December 31, 2000	140,601	$1,200,718	$ 453,250	$(12,493)	$1,641,475
Components of comprehensive income:					
Net income	—	—	144,470	—	144,470
Net change in unrealized gains on available-for-sale securities	—	—	—	7,988	7,988
Foreign currency translation adjustments	—	—	—	127	127
Other than temporary loss included in net income, net of tax	—	—	—	5,904	5,904
Comprehensive income					158,489
Issuance of common stock under employee compensation plans	2,954	45,469	—	—	45,469
Adjustment to conform to fiscal year end of GaSonics	57	851	863	—	1,714
Issuance of restricted common stock	31	—	—	—	—
Amortization of deferred compensation	—	1,451	—	—	1,451
Income tax benefits realized from activity in employee stock plans	—	25,037	—	—	25,037
Repurchases of common stock	(37)	(325)	(1,316)	—	(1,641)
Balance at December 31, 2001	143,606	1,273,201	597,267	1,526	1,871,994
Components of comprehensive income:					
Net income	—	—	22,920	—	22,920
Net change in unrealized losses on available-for-sale securities	—	—	—	(350)	(350)
Foreign currency translation adjustments	—	—	—	714	714
Gain on sale of an equity investment, net of tax	—	—	—	(3,636)	(3,636)
Comprehensive income					19,648
Issuance of common stock under employee compensation plans	2,870	54,434	—	—	54,434
Issuance of common stock and assumption of stock options in connection with the acquisition of SpeedFam-IPEC	5,733	166,736	—	—	166,736
Issuance of restricted common stock	100	—	—	—	—
Amortization of deferred compensation	—	1,626	—	—	1,626
Income tax benefits realized from activity in employee stock plans	—	19,427	—	—	19,427
Repurchases of common stock	(3,190)	(28,143)	(50,034)	—	(78,177)
Balance at December 31, 2002	149,119	1,487,281	570,153	(1,746)	2,055,688
Components of comprehensive loss:					
Net loss	—	—	(67,814)	—	(67,814)
Net change in unrealized gains on available-for-sale securities	—	—	—	172	172
Foreign currency translation adjustments	—	—	—	6,146	6,146
Comprehensive loss					(61,496)
Issuance of common stock under employee compensation plans and other	3,696	75,651	—	—	75,651
Issuance of restricted common stock, net	116	—	—	—	—
Amortization of deferred compensation	—	3,329	—	—	3,329
Repurchases of common stock	(32)	(335)	(977)	—	(1,312)
Balance at December 31, 2003	152,899	$1,565,926	$ 501,362	$ 4,572	$2,071,860

See accompanying Notes to the Consolidated Financial Statements.

NOVELLUS SYSTEMS, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Note 1. Description of the Business

Novellus Systems, Inc. is a supplier of semiconductor manufacturing equipment used in the fabrication of integrated circuits. We are focused on delivering innovative interconnect products and technologies that meet the increasingly complex and demanding needs of the world's largest semiconductor manufacturers. The semiconductor manufacturing equipment that we build, market and service provides today's chipmakers with high productivity and low cost of ownership.

As part of our growth strategy, from time to time we make acquisitions. On December 6, 2002, we acquired SpeedFam-IPEC, Inc., a global supplier of chemical mechanical planarization (CMP) systems used in the fabrication of advanced copper interconnects. The acquisition was accounted for as a purchase business combination and qualified as a tax-free reorganization under IRS regulations. Our consolidated financial statements for fiscal 2002 include the financial position, results of operations and cash flows of SpeedFam-IPEC from date of acquisition.

On January 10, 2001, we acquired GaSonics International Corporation, a developer and supplier of photoresist and residue removal technologies. The transaction was accounted for as a pooling-of-interests. Our financial statements include the operations of GaSonics for all periods presented. There were no transactions between GaSonics and Novellus prior to the acquisition.

Note 2. Significant Accounting Policies

Basis of Presentation — The accompanying consolidated financial statements include our accounts and the accounts of our wholly-owned subsidiaries after elimination of all significant intercompany account balances and transactions. Certain prior year amounts in the consolidated financial statements and the notes thereto have been reclassified to conform to the 2003 presentation.

Stock-Based Compensation — We account for stock-based employee compensation using the intrinsic value method under Accounting Principles Board Opinion No. 25, "Accounting for Stock Issued to Employees," or APB No. 25, and have adopted the disclosure-only provisions of Statement of Financial Accounting Standards No. 123, "Accounting for Stock-Based Compensation," or SFAS No. 123, as amended by SFAS No. 148, "Accounting for Stock-Based Compensation — Transition and Disclosures." Accordingly, no expense has been recognized for options granted to employees at fair value. We amortize deferred stock-based compensation on the graded vesting method over the vesting periods of the applicable stock purchase rights and stock options, generally four years. The graded vesting method provides for vesting of portions of the overall awards at interim dates and results in greater expense recorded in earlier years than the straight-line method.

SFAS No. 123 requires the use of option pricing models that were not developed for use in valuing employee stock options. The Black-Scholes option-pricing model was developed for use in estimating the fair value of short-lived exchange-traded options that have no vesting restrictions and are fully transferable. In addition, option-pricing models require the input of highly subjective assumptions, including the option's expected life and the price volatility of the underlying stock. Since our employee stock options have characteristics significantly different from those of traded options and changes in the subjective input assumptions can materially affect the fair value estimate, in our opinion, the existing models do not necessarily provide a reliable single measure of the fair value of employee stock options.

Had compensation expense been determined based on the fair value at the grant date for awards, consistent with the provisions of SFAS No. 123, we would have reported pro forma net income (loss) and net income (loss) per share as follows (in thousands, except per share data):

	Years Ended December 31,		
	2003	2002	2001
Net income (loss) as reported	$ (67,814)	$ 22,920	$144,470
Add back:			
Intrinsic value method expense included in reported net income (loss), net of tax	2,186	1,178	1,175
Less:			
Fair value method expense, net of tax	(66,063)	(70,232)	(68,478)
Pro-forma net income (loss)	$(131,691)	$(46,134)	$ 77,167
Pro-forma basic net income (loss) per share	$ (0.87)	$ (0.32)	$ 0.53
Pro-forma diluted net income (loss) per share	$ (0.87)	$ (0.32)	$ 0.49

The fair value of each option grant is estimated on the date of grant using the Black-Scholes option-pricing model, with the following weighted-average assumptions for grants made in 2003, 2002 and 2001:

	2003	2002	2001
Dividend yield	None	None	None
Expected volatility	78%	85%	85%
Risk free interest rate	2.1%	3.1%	4.1%
Expected lives	3.6 years	3.1 years	3.3 years

The weighted-average fair value of options granted during the year was $21.56, $17.67 and $22.85 for 2003, 2002 and 2001, respectively. The effects of applying SFAS 123 on pro forma disclosures are not likely to be representative of the effects on pro forma disclosures of future years.

The pro forma net income (loss) and net income (loss) per share listed above include expense related to our employee stock purchase plans. The fair value of issuances under the employee stock purchase plans is estimated on the date of issuance using the Black-Scholes option-pricing model, with the following weighted-average assumptions for issuances made in 2003, 2002 and 2001:

	2003	2002	2001
Dividend yield	None	None	None
Expected volatility	47%	72%	81%
Risk free interest rate	1.3%	2.0%	4.2%
Expected lives	1/2 year	1/2 year	1/2 year

The weighted average fair value of purchase rights granted during the year was $9.52, $12.88 and $16.76 for 2003, 2002 and 2001, respectively.

Use of Estimates — The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires us to make estimates and judgments that affect the reported amounts of assets, liabilities, revenues and expenses and the related disclosure of contingent assets and liabilities. We evaluate our estimates on an ongoing basis, including those related to revenue recognition, cash and investments, allowance for doubtful accounts, inventory valuation, deferred tax assets, property and equipment, goodwill and other intangible assets, warranty obligations, restructuring and impairment charges, contingencies and litigation and stock-based compensation. We base our estimates on

historical experience and on various other assumptions that are believed to be reasonable under the current circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Our intent is to accurately state our assets and liabilities given facts known at the time of valuation. Our assumptions may prove incorrect as facts change in the future. Actual results may differ materially from these estimates under different assumptions or conditions.

Revenue Recognition — We recognize revenue in accordance with SEC Staff Accounting Bulletin No. 104, "Revenue Recognition," or SAB 104, which superseded the earlier related guidance in SAB No. 101, "Revenue Recognition in Financial Statements," or SAB 101. We recognize revenue when persuasive evidence of an arrangement exists, delivery has occurred or services have been rendered, the seller's price is fixed or determinable, and collectibility is reasonably assured.

Certain of our product sales are accounted for as multiple-element arrangements. A multiple-element arrangement is a transaction which may involve the delivery or performance of multiple products, services, or rights to use assets, and performance may occur at different points in time or over different periods of time. If we have met defined customer acceptance experience levels with both the customer and the specific type of equipment, we recognize equipment revenue upon shipment and transfer of title, with the remainder generally recognized at the later of completion of the installation services or customer acceptance.

Installation services are not essential to the functionality of the delivered equipment. We allocate revenue based on the residual method as a fair value has been established for installation services. However, since final payment is not typically due until customer acceptance, we defer revenue for the final payment, which is in excess of the fair value of the installation services. All other equipment sales are recognized upon customer acceptance.

Revenue related to sales of spare parts is recognized upon shipment. Revenue related to maintenance and service contracts is recognized ratably over the duration of the contracts. Unearned maintenance and service contract revenue is included in other accrued liabilities.

Cash, Cash Equivalents and Short-Term Investments — We consider all highly liquid debt instruments with insignificant interest rate risk and original maturities of ninety days or less to be cash equivalents. Investments with original maturities greater than three months and that mature within one year from the balance sheet date are considered to be short-term investments. Our short-term investments are classified as available-for-sale and are reported at fair value, with unrealized gains and losses, net of tax, recorded in shareholders' equity. The fair value of short-term investments is based on quoted market prices. Realized gains and losses and declines in fair value that are other than temporary are recorded in earnings when realized. The cost of securities sold is based on the specific identification method.

Allowance for Doubtful Accounts — We evaluate our allowance for doubtful accounts based on a combination of factors. In circumstances where we are aware of a specific customer's inability to meet its financial obligations, we provide a specific allowance for bad debt against the amount due to reduce the net recognized receivable to the amount we reasonably believe will be collected. For all other customers, we recognize an allowance for doubtful accounts based on a certain percentage of total revenues, which is based on our historical experience over the past five years. If circumstances change (e.g. higher than expected defaults or an unexpected material adverse change in a major customer's ability to meet its financial obligations), we may amend our estimates of the recoverability of the outstanding balance.

Inventories and Inventory Valuation — Inventories are stated at the lower of cost (first-in, first-out) or market. We periodically assess the recoverability of all inventories, including raw materials, work-in-process, finished goods, and spare parts, to determine whether adjustments for impairment are required. Inventory that is obsolete or in excess of our forecasted usage is written down to its estimated realizable value based on assumptions about future demand and market conditions. If actual demand is lower than our forecast, additional inventory write-downs may be required.

Deferred Tax Assets — We record a valuation allowance to reduce our deferred tax assets to the amount that is more likely than not to be realized. The valuation allowance at December 31, 2003 relates primarily to acquired net operating loss carryforwards and foreign tax credits that are not realizable until 2006 and beyond. The valuation allowance includes $38.0 million related to acquired deferred tax assets of SpeedFam-IPEC which will be credited to goodwill when realized, and $26.5 million related to stock option deductions which will be credited to equity when realized. We have considered future taxable income and ongoing prudent and feasible tax planning strategies in assessing the need for the valuation allowance. If in the future we determine that we would not be able to realize all or part of our net deferred tax assets, an increase to the valuation allowance for deferred tax assets would decrease income in the period in which such determination was made.

Property and Equipment — Property and equipment are stated at cost. Depreciation and amortization are computed on the straight-line method over the following estimated useful lives:

Machinery and equipment	2 - 7 years
Furniture and fixtures	3 - 5 years
Buildings	30 - 40 years
Leasehold improvements	Shorter of useful life or remaining lease term

Goodwill and Other Intangible Assets — We account for goodwill and other intangible assets in accordance with SFAS No. 142, "Goodwill and Other Intangible Assets," or SFAS No. 142. SFAS No. 142 requires that goodwill and identifiable intangible assets with indefinite useful lives no longer be amortized, but instead be tested for impairment at least annually. SFAS No. 142 also requires that intangible assets with estimable useful lives be amortized over their respective estimated useful lives to their estimated residual values, and reviewed for impairment in accordance with SFAS No. 144, "Accounting for the Impairment or Disposal of Long-Lived Assets."

We review our long-lived assets, including goodwill and other intangible assets, for impairment at least annually or whenever events or changes in circumstances indicate that the carrying amount of these assets may not be recoverable. According to our policy, we completed goodwill impairment tests in the third and fourth quarters of 2003. The test performed in the third quarter was completed in connection with our restructuring plan implemented in that quarter. Our annual goodwill impairment test was completed in the fourth quarter. The first step of the test identifies when impairment may have occurred, while the second step of the test measures the amount of the impairment, if any. The results of our impairment tests did not indicate impairment. For further discussion, see Note 6 to the Consolidated Financial Statements.

Warranty — Our warranty policy generally states that we will provide warranty coverage for a predetermined amount of time on systems and modules for material and labor to repair and service the equipment. We record the estimated cost of warranty coverage to cost of sales upon system shipment. The estimated cost of warranty is determined by the warranty term as well as the average historical labor and material costs for a specific product. Should actual product failure rates or material usage differ from our estimates, revisions to the estimated warranty liability may be required. These revisions could have a positive or negative impact on gross profit. We review the actual product failure rates and material usage rates on a quarterly basis and adjust our warranty liability as necessary.

Restructuring and Impairment Charges — Restructuring activities initiated prior to December 31, 2002 were recorded in accordance with Emerging Issues Task Force Issue No. 94-3, "Liability Recognition for Certain Employee Termination Benefits and Other Costs to Exit an Activity (Including Certain Costs Incurred in a Restructuring)," and restructuring activities after December 31, 2002 were recorded under the provisions of SFAS No. 146, "Accounting for Costs Associated with Exit or Disposal Activities," or SFAS No. 146; SFAS No. 112, "Employers' Accounting for Postemployment Benefits;" and SAB 100, "Restructuring and Impairment Charges." SFAS No. 146 requires that a liability for costs associated with an

exit or disposal activity be recognized when the liability is incurred, rather than when the exit or disposal plan is approved.

Certain restructuring charges related to asset impairments are recorded in accordance with SFAS No. 144 and SAB 100. Accordingly, restructuring accruals are recorded when management initiates an exit plan that will cause us to incur costs that have no future economic benefit. The restructuring accrual related to vacated facilities is calculated net of estimated sublease income. Sublease income is estimated based on current market quotes for similar properties. If we are unable to sublet the vacated properties on a timely basis or if we are forced to sublet them at lower rates due to changes in market conditions, we would adjust the accruals accordingly.

Contingencies and Litigation — We assess the probability of adverse judgments in connection with current and threatened litigation. We would accrue the cost of an adverse judgment if, in our estimation, the adverse outcome is probable and we can reasonably estimate the ultimate cost. We have made no such accruals as of December 31, 2003.

Foreign Currency Translation — For all of our foreign subsidiaries, the local currency is the functional currency. Accordingly, translation gains or losses related to these foreign subsidiaries are included as a component of accumulated other comprehensive income (loss).

Forward Foreign Exchange Contracts — Forward foreign exchange contracts are used to hedge against the short-term impact of foreign currency fluctuations on intercompany accounts payable denominated in U.S. dollars recorded by our Japanese subsidiary. We also enter into forward foreign exchange contracts to buy and sell foreign currencies to hedge the parent's intercompany balances denominated in a currency other than the U.S. dollar. In 2003 and 2002, these hedging contracts were denominated primarily in the Japanese Yen, the Taiwanese dollar, and the Korean Won. The forward foreign exchange contracts we use are generally short-term in nature. The effect of exchange rate changes on forward exchange contracts is expected to offset the effect of exchange rate changes on the underlying hedged items. We believe these financial instruments do not subject us to speculative risk that would otherwise result from changes in currency exchange rates. All unsettled foreign currency contracts are marked-to-market, with unrealized gains and losses included as a component of other income and expense. Net foreign currency gains and losses for effective and ineffective hedges have not been material to our results of operations.

Advertising Expenses — We expense advertising costs as incurred. Advertising expenses for 2003, 2002 and 2001 were $1.9 million, $2.7 million and $4.7 million, respectively.

Concentration of Credit and Other Risks — We use financial instruments that potentially subject us to concentrations of credit risk. Such instruments include cash equivalents, short-term investments, accounts receivable and financial instruments used in hedging activities. We invest our cash in cash deposits, money market funds, commercial paper, certificates of deposit, readily marketable debt securities, or medium-term notes. We place our investments with high-credit quality financial institutions, which limits the credit exposure from any one financial institution or instrument. To date, we have not experienced significant losses on these investments.

We sell a significant portion of our systems to a limited number of customers. System sales to our ten largest customers in 2003, 2002 and 2001 accounted for 76%, 79% and 61% of our total net sales, respectively. No customer accounted for more than 10% of our accounts receivable as of December 31, 2003. One customer accounted for 18% of receivables at December 31, 2002. We expect sales of our products to relatively few customers will continue to account for a high percentage of our total net sales in the foreseeable future. None of our customers has entered into a long-term purchase agreement that would require them to purchase our products. If the financial condition or operations of these customers deteriorate substantially, our operating results could be adversely affected.

We perform ongoing credit evaluations of our customers' financial condition and generally require no collateral. We have an exposure to nonperformance by counterparties on the foreign exchange contracts used in hedging activities. These counterparties are large international financial institutions and to date, no such counterparty has failed to meet its financial obligations to us. We do not believe there is a significant risk of nonperformance by these counterparties because we continuously monitor our positions, the credit ratings of such counterparties, and the amount of contracts we enter into with any one party. However, there can be no assurance that there will be no significant nonperformance by these counterparties and that this would not materially adversely affect our business, financial condition, and results of operations.

Recent Accounting Pronouncements

In May 2003, the Financial Accounting Standards Board, or FASB, issued SFAS No. 150, "Accounting for Certain Financial Instruments with Characteristics of both Liabilities and Equity," or SFAS No. 150. SFAS No. 150 establishes standards for the classification and measurement of financial instruments with characteristics of both liabilities and equity. SFAS No. 150 became effective for three types of financial instruments entered into or modified after May 31, 2003. The adoption of SFAS No. 150 does not have a material impact on our results of operations or financial condition.

Note 3. Financial Instruments

Cash, Cash Equivalents and Short-term Investments

The following table presents the estimated fair value of our short-term investments by investment grade (in thousands):

	December 31,	
	2003	2002
Cash	$ (21,390)	$ 7,727
Institutional money market funds	477,500	565,694
Commercial paper	37,370	42,423
Agency securities	3,698	—
Amounts included in cash and cash equivalents	497,178	615,844
U.S. Government agencies	287,428	314,545
Municipal securities	53,046	27,532
Commercial paper	6,980	25,783
Corporate securities	52,534	18,653
Tax-exempt auction rate notes	102,125	14,700
Mutual funds	2,841	2,595
Amounts included in short-term investments	504,954	403,808
Total cash, cash equivalents and short-term investments	$1,002,132	$1,019,652

Unrealized gains (losses) on all securities were not significant as of December 31, 2003 and 2002. All debt securities held at December 31, 2003 are due in less than two years.

Fair Value of Other Financial Instruments

The carrying and estimated fair values of our other financial instruments are as follows (in thousands):

	December 31,			
	2003		2002	
	Carrying Value	Estimated Fair Value	Carrying Value	Estimated Fair Value
Restricted investment — non-current	$ 2,861	$ 2,861	$ 58,995	$ 58,995
Notes receivable	—	—	397,429	397,429
Current obligations under lines of credit	13,023	13,023	2,799	2,799
Convertible subordinated debentures	—	—	116,437	116,437

The fair values of our restricted investments are based on quoted market prices as of December 31, 2003 and 2002, respectively. The fair value of our obligations under lines of credit is based on current rates offered to us for similar debt instruments of the same remaining maturities.

Financial Instruments with Off-Balance Sheet Risk

As part of our asset and liability management, we enter into various types of transactions that involve financial instruments with off-balance sheet risk. We enter into foreign forward exchange contracts in order to manage foreign exchange risk. The notional amounts, carrying amounts and estimated fair values of our foreign currency forward exchange contracts are as follows (in thousands):

	December 31,					
	2003			2002		
	Notional Amount	Carrying Amount	Estimated Fair Value	Notional Amount	Carrying Amount	Estimated Fair Value
Sell (buy) foreign currencies	$(5,396)	$(2,996)	$(2,996)	$(23,024)	$898	$898

The fair value of our foreign forward exchange contracts is calculated based on quoted market prices or pricing models using current market rates as of December 31, 2003 and 2002, respectively.

Note 4. Balance Sheet Details

Inventories

	December 31,	
	2003	2002
	(In thousands)	
Purchased and spare parts	$146,399	$205,341
Work-in-process	37,502	45,487
Finished goods	15,199	6,530
Total inventories	$199,100	$257,358

Property and equipment, net

	December 31,	
	2003	2002
	(In thousands)	
Property and equipment:		
Machinery and equipment	$530,925	$290,273
Buildings and land	235,304	8,983
Leasehold improvements	84,720	87,740
Furniture and fixtures	19,628	19,725
	870,577	406,721
Less accumulated depreciation	364,010	226,795
Total property and equipment	$506,567	$179,926

Accrued warranty

Changes in our accrued warranty liability were as follows (in thousands):

	Years Ended December 31,	
	2003	2002
Balance, beginning of period	$ 31,002	$ 43,337
Warranties issued	42,229	38,908
Settlements	(47,270)	(56,322)
SpeedFam-IPEC balance at acquisition	—	1,264
Changes in liability for pre-existing warranties, including expirations	2,844	3,815
Balance, end of period	$ 28,805	$ 31,002

Note 5. Earnings (Loss) Per Share

Basic net income (loss) per share is computed by dividing net income (loss) by the weighted-average number of common shares outstanding during the period. For purposes of computing net income (loss) per share, the weighted-average number of outstanding shares of common stock excludes shares of restricted stock subject to repurchase.

Diluted net income per share is computed using the weighted-average number of shares of common stock outstanding, including shares of restricted common stock subject to repurchase and, when dilutive, potential shares from stock options to purchase common stock using the treasury stock method and from convertible securities on an as-if-converted basis.

The following table provides a reconciliation of the numerators and denominators of the basic and diluted per share computations (in thousands, except for per share amounts):

	Years Ended December 31,		
	2003	2002	2001
Numerator:			
Net income (loss)	$(67,814)	$ 22,920	$144,470
Denominator:			
Basic weighted-average shares outstanding	150,680	144,371	142,462
Employee stock options	—	4,179	6,342
Restricted stock	—	198	120
Diluted weighted-average shares outstanding	150,680	148,748	148,924
Basic net income (loss) per share	$ (0.45)	$ 0.16	$ 1.01
Diluted net income (loss) per share	$ (0.45)	$ 0.15	$ 0.97

For the year ended December 31, 2003, all 3.5 million shares of stock options to purchase common stock were excluded from the computation of net loss per share as it would be anti-dilutive during the period. Options to purchase 8.7 million and 3.6 million shares of common stock at weighted-average prices of $42.60 and $46.77 per share were outstanding during 2002 and 2001, respectively, but were not included in the computation of diluted net income per common share because the exercise price of the options was greater than the average market price of the common shares and, therefore, the effect would be anti-dilutive.

Note 6. Goodwill and Other Intangible Assets

Goodwill

As of December 31, 2003 and 2002, we had goodwill of approximately $173.3 million and $163.1 million, respectively. We completed a goodwill impairment test in the third quarter of 2003 in conjunction with our restructuring activities. In addition, we completed the annual goodwill impairment test in the fourth quarters of 2003 and 2002 in accordance with our policy. The first step of the test identifies when impairment may have occurred, while the second step of the test measures the amount of the impairment, if any. The results of our impairment tests did not indicate impairment.

As a result of the acquisition of SpeedFam-IPEC in December 2002, we recorded goodwill of $143.0 million. In 2003, we recorded a net increase to goodwill of approximately $10.1 million. The adjustment to goodwill is a result of the reallocation of the initial estimated purchase price allocation for the acquisition of SpeedFam-IPEC and additional purchase price. The following table represents the 2003 adjustments to goodwill, assets acquired and liabilities assumed (in thousands):

Directors and officers insurance	$ 1,293
Revisions to assigned inventory value	3,083
Restructuring accrual	11,032
Deferred tax assets — non-current	(6,108)
Other adjustments	831
Total goodwill adjustment	$10,131

The directors and officers (D&O) insurance covers the former directors and officers of SpeedFam-IPEC. As part of our acquisition of SpeedFam-IPEC, we agreed to purchase D&O insurance for these directors and officers; however, the cost of the D&O insurance was not included in our initial purchase price.

The revisions assigned to inventory value of $3.1 million primarily relates to inventory not properly valued as of the acquisition date. The adjustment to the restructuring accrual of $11.0 million is due to a decrease in our estimated future sublease income on facilities leased by SpeedFam-IPEC. This revised sublease income estimate is based on subsequent knowledge obtained about real estate conditions that existed as of the acquisition date. These facilities were abandoned as a result of the acquisition. The deferred tax asset adjustment of $6.1 million is a result of the additional purchase price allocation adjustments.

The following table reconciles the reported net income (loss) and net income (loss) per share for 2001 to their respective pro forma balances, adjusted to exclude goodwill amortization expense, as a result of the adoption of SFAS No. 142 in January 2002. Fiscal 2003 and 2002 results are presented for comparative purposes (in thousands, except for net income (loss) per share):

	Years Ended December 31,		
	2003	2002	2001
Reported net income (loss)	$(67,814)	$22,920	$144,470
Add back goodwill amortization, net of tax	—	—	2,232
Adjusted net income (loss)	$(67,814)	$22,920	$146,702
Basic and diluted income (loss) per share:			
Reported basic net income (loss) per share	$ (0.45)	$ 0.16	$ 1.01
Add back goodwill amortization, net of tax	—	—	0.02
Adjusted basic income (loss) per share	$ (0.45)	$ 0.16	$ 1.03
Reported diluted net income (loss) per share	$ (0.45)	$ 0.15	$ 0.97
Add back goodwill amortization, net of tax	—	—	0.02
Adjusted diluted income (loss) per share	$ (0.45)	$ 0.15	$ 0.99

Intangible Assets

Intangible assets consist primarily of purchased technology. Intangible assets amounted to $15.1 million, net of accumulated amortization of $4.2 million, and $25.6 million, net of accumulated amortization of $2.4 million, as of December 31, 2003 and 2002, respectively. During 2003, we wroteoff $5.5 million of purchased technology. For further discussion, see Note 8 to the Consolidated Financial Statements. The amortization expense for the identifiable intangible assets was approximately $3.6 million, $1.4 million and $1.0 million for the years ended December 31, 2003, 2002 and 2001, respectively. Our estimated amortization expense for the identifiable intangible assets for each of the next five years will be approximately $2.9 million per year. As of December 31, 2003, we have no identifiable intangible assets with indefinite lives.

Note 7. Business Combinations

Acquisition of SpeedFam-IPEC

On December 6, 2002, we acquired all of the outstanding stock of SpeedFam-IPEC in exchange for 0.1818 of a share of Novellus common stock for each outstanding share of SpeedFam-IPEC common stock. We assumed options to purchase SpeedFam-IPEC common stock based on the same ratio. In addition, we assumed all $115.0 million of SpeedFam-IPEC's 6.25% Convertible Subordinated Notes due in 2004. The Notes were adjusted to a fair value of $116.4 million as of the acquisition date. The acquisition was accounted for as a purchase business combination and qualified as a tax-free reorganization under Internal Revenue Service regulations. The results of SpeedFam-IPEC's operations have been included in the consolidated financial statements since December 6, 2002. The total purchase price of approximately $175.7 million

includes Novellus common stock valued at $153.4 million, assumed options and warrants with a fair value of $16.4 million and estimated direct transaction costs of $5.9 million. The fair value of Novellus' common stock was derived using an average market price per share of $26.77, which was based on an average of the closing prices for a range of five trading days around August 12, 2002, the announcement date of the acquisition. The fair value of the stock options was determined using the Black-Scholes option pricing model with the following assumptions: no dividend yield, expected volatility of 85%, expected life of 3.3 years and a risk-free interest rate of 2.49%. The model assumed an expected life of 3.3 years for assumed options and 0.5 years for assumed warrants. The purchase price was allocated to the fair market value of assets acquired and liabilities assumed.

Note 8. Restructuring and Other Charges

The following table summarizes activity related to restructuring charges we recorded in the three years ended December 31, 2003 (in thousands):

	Facilities	Asset Impairment	Severance	Acquisition Expense	Total	Inventory Write-down
Restructuring charges for 2001	$33,818	$ 14,127	$ —	$ 13,161	$ 61,106	$ 7,102
Cash payments	(952)	(1,745)	—	(13,161)	(15,858)	—
Non-cash charges	(6,017)	(12,382)	—	—	(18,399)	(7,102)
Balance at December 31, 2001	26,849	—	—	—	26,849	—
Restructuring charges for 2002	1,478	—	4,989	—	6,467	—
SpeedFam-IPEC restructuring charges	27,024	—	251	1,253	28,528	—
Cash payments	(9,783)	—	(4,989)	—	(14,772)	—
Balance at December 31, 2002	45,568	—	251	1,253	$ 47,072	—
Restructuring charges for 2003	4,088	7,943	3,807	—	15,838	43,952
SpeedFam-IPEC acquisition adjustment	11,032	—	—	—	11,032	—
Cash payments	(9,828)	—	(3,466)	(138)	(13,432)	—
Non-cash charges	(347)	(7,943)	—	—	(8,290)	(43,952)
Balance at December 31, 2003	$50,513	$ —	$ 592	$ 1,115	$ 52,220	$ —

In September 2001, we implemented a restructuring plan that was driven by the decline in net orders due to the contraction of the semiconductor capital equipment market from calendar year 2000 levels and the need to improve our cost structure by consolidating excess facilities. As a result, we recorded restructuring and asset impairment charges totaling $55.0 million, of which $47.9 million is included in operating expense and $7.1 million is included in cost of sales. The restructuring charges consisted of $33.8 million related to vacated facilities, $14.1 million of asset impairment charges and $7.1 million of discontinued inventory write-downs. Of the $14.1 million asset impairment charge, $9.5 million related to abandoned assets associated with the discontinuation of certain projects and $4.6 million related to the write-off of purchased technology.

The restructuring charges in 2002 include approximately $28.5 million incurred in connection with exiting activities of SpeedFam-IPEC that were recognized as liabilities assumed in the purchase business combination. These activities relate primarily to facility-related charges of $27.0 million, severance-related charges of $0.3 million and other costs associated with exiting activities of SpeedFam-IPEC of $1.2 million.

In the third quarter of 2003, we announced a restructuring plan to align our cost structure with current business conditions. The restructuring plan resulted in pre-tax charges of $59.8 million in the third quarter, which is comprised of $44.0 million for the write-down of inventory, $7.9 million for asset write-offs (including fixed assets and purchased technology), $4.1 million for vacated facilities, and $3.8 million for severance. The inventory charge, which is also discussed further below, is included in cost of sales and the other charges are included in restructuring and other charges in the consolidated statement of operations.

Facilities

The 2001 vacated facilities charge of $33.8 million relates to rent obligations after the abandonment of five corporate facilities in California, primarily San Jose, and eleven field offices located in Arizona, California, Florida, Washington, the Netherlands, Germany, Israel, Singapore and Japan, which were under long-term operating lease agreements. The abandoned corporate facilities were redundant facilities from the GaSonics acquisition. The closure of the field offices was due to a slowdown in the semiconductor capital equipment market. As of December 31, 2001, we estimated anticipated future sublease income of $4.5 million relating to the vacated facilities and offset the amount against the remaining lease payments. During 2002 and 2003, additional charges of $1.5 million and $3.0 million, respectively, were recorded due to a decrease in our future sublease income estimate.

The facility-related charges of $27.0 million in 2002 were attributable to the closure and/or subletting of excess SpeedFam-IPEC office space, primarily in the U.S. and Asia. The majority of the facility-related charges consisted of remaining rent obligations and restoration costs offset by estimated sublease income of approximately $44.1 million. The estimated costs of abandoning these leased facilities, including estimated sublease income, were based primarily on market information analyses provided by a commercial real estate brokerage firm we retained. In the third quarter of 2003, we lowered the estimated sublease income related to the SpeedFam-IPEC facilities by $11.0 million, as discussed below.

The facilities restructuring charge in the third quarter of 2003 primarily relates to abandoned corporate facilities from our January 2001 acquisition of GaSonics International Corporation. The charge consists of $1.1 million of repair and restoration costs and $3.0 million related to the decrease in our future sublease income estimate noted above. In addition to the restructuring charge, we further lowered our estimate of future sublease income on abandoned facilities from the SpeedFam-IPEC acquisition by $11.0 million. The SpeedFam-IPEC facilities adjustment resulted in an increase to goodwill due to a reallocation of our purchase price. For further discussion on the goodwill increase, see Note 6 to the consolidated financial statements.

Asset Impairment

In 2001, we abandoned assets and wrote off purchased technology of $14.1 million. The charge for abandoned assets of $9.5 million relates to the write-off of evaluation tools of $6.1 million, with the remaining balance pertaining to the write-off of certain assets related to two abandoned product lines and certain previous generation lab equipment. These items have been written off as we do not expect future cash flows from them. The write-off of purchased technology of $4.6 million relates to technology purchased from a third party vendor for use in certain research and development projects. The purchased technology has been written off as these research and development projects have been cancelled and there is no future economic benefit pertaining to the purchased technology. The results of operations relating to these product lines were not material to our consolidated results of operations.

In the third quarter of 2003, we abandoned assets and wrote off purchased technology of $7.9 million. The charge for abandoned assets of $2.4 million primarily relates to previous generation lab equipment. These assets have been abandoned as we do not expect to recover the carrying value through future cash flows. The write-off of purchased technology of $5.5 million relates to technology previously purchased from a third party vendor for use in certain research and development projects. The purchased technology has been written off as these research and development projects have been cancelled and there is no estimated future economic benefit for the purchased technology.

Severance

In the first and fourth quarters of 2002, we reduced our workforce by approximately 13.1% and 8.0%, respectively, in response to market conditions, and accordingly recorded charges of $3.3 million and $1.7 million, respectively, primarily for the cost of severance compensation. These employee reductions affected approximately 500 people across all business functions, operating units and major geographic regions. As of December 31, 2002, substantially all severance benefits related to these reductions in workforce had been paid. SpeedFam-IPEC's severance-related charges of $0.3 million were attributable to workforce reductions in the U.S. and various international locations across many business functions and job classes. The charges include severance, payroll taxes and COBRA benefits. All of these severance-related charges had been paid as of December 31, 2003.

In the third quarter of 2003, we reduced our workforce by approximately 7% in response to market conditions and recorded charges of $3.8 million, primarily for the cost of severance compensation. This workforce reduction affected approximately 200 people across all business functions, operating units and major geographic regions. Substantially all of these severance-related charges had been paid as of December 31, 2003.

Acquisition Costs

In addition to the restructuring charges, we also incurred acquisition costs of $13.2 million related to the acquisition of GaSonics in the first quarter of fiscal 2001. These costs included professional fees, financial printing and other related costs. Additionally, these costs included charges related to the cancellation of various contracts and the write-off of certain redundant assets. At December 31, 2001, all expenses related to these accruals had been paid.

Other costs of $1.2 million recorded in 2002 primarily relate to legal and other professional fees as well as other exit costs associated with the closing of SpeedFam-IPEC's foreign entities.

Inventory Write-downs

The write-down of inventory of $7.1 million in 2001 relates to the abandonment of two product lines. One product line was not part of our core business strategy and the other, a PECVD product, has been replaced by a next-generation product. The results of operations relating to these product lines were not material to our consolidated results of operations.

The inventory charge in the third quarter of 2003 was a result of a sustained shift in our customers' order patterns from 200mm to 300mm equipment, which resulted in reduced demand for our 200mm equipment. Furthermore, the levels of required spares inventory were reduced due to a streamlining of our worldwide spares distribution system. These changes resulted in a portion of our inventory becoming excess or obsolete and led to a $44.0 million write-down of inventory.

As of December 31, 2003, substantially all actions under the 2003, 2002 and 2001 restructuring plans have been completed, except for payments of future rent obligations of $50.5 million, which are to be paid in cash through year 2017.

Note 9. Convertible Subordinated Debentures

In connection with our acquisition of SpeedFam-IPEC, we assumed $115.0 million of convertible subordinated notes due in 2004. The notes were adjusted to their fair value of $116.4 million as of the acquisition date. The notes accrued interest at a rate of 6.25%, which was payable semi-annually in March and September. The notes were subordinated to all existing and future senior Novellus indebtedness and could have been converted into 3.3096 shares of Novellus' common stock at a conversion price of $302.15 per $1,000 principal amount. We exercised our right to redeem the notes on January 8, 2003 at a redemption price of $117.1 million. The redemption price represented 101.786% of par value. As a result, we recognized approximately $0.6 million in other expense in 2003 for the difference between the carrying value as of the acquisition date and the redemption price.

On July 26, 2001, we issued $880.0 million of Liquid Yield Option Notes™ (LYONs) due July 26, 2031. The net proceeds after issuance costs (which were being amortized over 30 years) from the LYONs offering were $862.4 million. The LYONs were zero coupon, zero-yield subordinated debentures convertible into shares of Novellus' common stock or redeemable for cash by the security holder, subject to specified conditions as set forth in the indenture. On July 26, 2002, the holders of the LYONs exercised their option to require us to repurchase each LYON for $1,000 in cash on such date, or approximately $880.0 million for substantially all of the outstanding LYONs. We used restricted short-term investments, which had matured to $880.0 million, to repurchase the LYONs. We recorded a charge of approximately $17.0 million in other expense in 2002 for the remaining unamortized issuance costs related to the LYONs.

Note 10. Commitments and Guarantees

Variable Interest Entities

In January 2003, the FASB issued FASB Interpretation No. 46, "Consolidation of Variable Interest Entities, an Interpretation of ARB No. 51," or FIN 46. FIN 46 requires variable interest entities to be consolidated by the primary beneficiary of the entity. An entity is considered a variable interest entity if the equity investors in the entity do not have the characteristics of a controlling financial interest or do not have sufficient equity at risk for the entity to finance its activities without additional subordinated financial support from other parties. FIN 46 is effective for all new variable interest entities created or acquired after January 31, 2003. For variable interest entities created or acquired prior to February 1, 2003, the provisions of FIN 46 were to be applied at the end of periods ending after June 15, 2003. In October 2003, the FASB issued a FASB Draft Position on FIN 46, delaying the effective date of FIN 46 to periods ending after December 15, 2003, but encouraging early adoption. We early-adopted FIN 46 on June 29, 2003.

Pursuant to the guidelines of FIN 46, we concluded that the lessor in our synthetic leases was a variable interest entity and that we were the primary beneficiary of the variable interest entity. As such, we were required to consolidate the variable interest lessor beginning on June 29, 2003. Additionally, since each of the other lessees involved with this lessor had a variable interest in specified assets and liabilities of the variable interest lessor, we were only required to consolidate the specific assets, liabilities, and operating results associated with our synthetic leases. As a result of the early adoption of FIN 46, we recorded a non-cash charge of approximately $62.8 million, net of tax, in the third quarter of fiscal 2003 as a cumulative effect of a change in accounting principle in accordance with APB Opinion No. 20, "Accounting Changes." The gross charge represents approximately $95.8 million of pre-tax depreciation that would have been recorded had we consolidated these assets from inception of the leases. As a result of the adoption of FIN 46 and the exercise of our option to purchase the properties subject to the synthetic leases in September 2003, property and equipment increased on a net basis by approximately $360.6 million and notes receivable and other non-current assets decreased by $456.4 million. The purchase of these properties in September 2003 eliminated our interest in the variable interest entity.

The consolidation and subsequent purchase of the facilities previously accounted for as synthetic leases increased our depreciation expense by approximately $8.5 million per quarter and decreased both our rent expense and interest income by approximately $3.0 million per quarter from historical levels, which decreased our quarterly earnings per share by approximately $0.04. The adoption of FIN 46 and the exercise of our purchase option had no impact on our liquidity.

Standby Letters of Credit

We provide standby letters of credit to certain parties as required for certain transactions we initiated during the ordinary course of business. As of December 31, 2003, the maximum potential amount of future payments that we could be required to make under these letters of credit was approximately $4.8 million. We have not recorded any liability in connection with these arrangements beyond that required to appropriately account for the underlying transaction being guaranteed. We do not believe, based on historical experience and information currently available, that it is probable that any amounts will be required to be paid under these arrangements.

Guarantee Arrangements

We have guarantee arrangements on behalf of certain of our consolidated subsidiaries. These guarantee arrangements are for line-of-credit borrowings, overdrafts and operating leases. The available credit facilities with various financial institutions total $31.3 million. These credit facilities bear interest at various rates, expire on various dates through December 2004 and are used for general corporate purposes. As of December 31, 2003, our subsidiaries had $13.0 million outstanding under the lines of credit at an annual weighted-average interest rate of 1.2%, which, on a consolidated basis, we will be required to repay. In the event of default of these facilities by our subsidiaries, such arrangements would be guaranteed by us to a maximum exposure of $29.9 million as of December 31, 2003. As of December 31, 2002, amounts outstanding under these lines of credit were $2.8 million, at an annual weighted-average interest rate of 1.4%.

Certain of our subsidiaries have lease arrangements, which we guarantee. These leases will expire between 2004 and 2010. In the event that our subsidiaries do not make the required payments, we could be required to pay the leases on their behalf. The annual lease obligations under these arrangements are included in our consolidated minimum lease payments table below. As of December 31, 2003, we have not recorded any liability related to guarantees of subsidiary obligations. Based on historical experience and information currently available to us, we do not expect that it is probable any amounts will be required to be paid under these guarantee arrangements.

Lease Commitments

We have non-cancelable operating leases for various facilities. Rent expense was approximately $13.1 million, $10.4 million and $16.9 million for the years ended December 31, 2003, 2002 and 2001, respectively, net of sublease income of $7.9 million, $7.4 million and $7.2 million, respectively. Certain of the operating leases contain renewal options, at our discretion, at the end of the lease terms.

The following is a table summarizing future minimum lease payments under all non-cancelable operating leases, with initial or remaining terms in excess of one year. We had no other significant commitments as of December 31, 2003 (in thousands):

	Years Ending December 31,							
	2004	2005	2006	2007	2008	Thereafter	Sublease Income	Net Total
Non-cancelable operating leases . . .	$14,042	$13,188	$11,644	$6,982	$7,082	$46,781	$(21,147)	$78,572

Note 11. Litigation

Applied Materials, Inc.

On June 13, 1997, we agreed to purchase the Thin Film Systems (TFS) business of Varian Associates, Inc. On the same day, Applied Materials, Inc. sued Varian in the United States District Court for the Northern District of California for alleged patent infringement concerning several of its physical vapor deposition (PVD) patents (the Applied Patents).

On June 23, 1997, we sued Applied in the United States District Court for the Northern District of California, claiming infringement by Applied of several of our PVD patents acquired from Varian in the TFS purchase. Applied has filed counterclaims in this suit, alleging that we infringed the Applied Patents. We are seeking an injunction against future infringement by Applied, damages for past infringement and treble damages for alleged willful infringement.

On July 7, 1997, Applied amended its complaint in its suit against Varian to add Novellus as a defendant. We have requested that the Court dismiss us as a defendant in this suit. The Court has not yet ruled on the request or required us to file an answer in this lawsuit.

The relief requested by Applied in both suits includes a permanent injunction against future infringement, damages for alleged past infringement and treble damages for alleged willful infringement. Trial is currently set to commence on May 24, 2004. Applied has recently indicated, however, that it will not be seeking any relief against us in this trial.

We believe that we have meritorious claims against Applied. We also believe that there are meritorious defenses to Applied's allegations, including the defense that our operations and products (including TFS products and systems) do not infringe the Applied Patents, and that the Applied Patents are invalid, unenforceable or both. As a result of court rulings adverse to Applied, and in light of certain indemnity obligations undertaken by Varian, which include reimbursement of certain legal expenses and a portion of any losses incurred from this litigation, we do not believe that Applied's claims will have a material adverse effect on our business, financial condition or results of operations.

Semitool, Inc.

On June 11, 2001, Semitool, Inc. sued Novellus for patent infringement in the United States District Court for the District of Oregon. In this lawsuit, Semitool alleges that Novellus infringes one of Semitool's patents related to copper electroplating. Semitool seeks an injunction against future infringement by Novellus, damages for past infringement, and treble damages for alleged willful infringement.

On November 13, 2001, we countersued Semitool for patent infringement in the United States District Court for the District of Oregon. We allege that Semitool infringes certain Novellus patents related to copper electroplating. We seek an injunction against Semitool, damages for past infringement, and treble damages for willful infringement by Semitool.

The Court has issued claim construction orders regarding all of the patents-in-suit, and discovery has closed. The Court has not yet ruled on any of the motions for summary judgment submitted by Semitool against the Novellus patents. The case is presently scheduled to proceed to trial in November of 2004. We believe that we have meritorious claims against Semitool and meritorious defenses to Semitool's claims against us, and that this litigation will not have a material adverse impact on our business, financial condition, or results of operations. However, the outcome of patent disputes is often affected by uncertainty in the resolution of complex issues of fact and law. If Semitool were to prevail against us, the adverse effect on our business, financial condition, or results of operations could be material.

Plasma Physics Corporation and Solar Physics Corporation

On June 14, 2002, certain of our present and former customers — including Agilent Technologies, Inc., Micron Technology, Inc., Agere Systems, Inc., National Semiconductor Corporation, Koninklijke Philips Electronics N.V., Texas Instruments, Inc., ST Microelectronics, Inc., LSI Logic Corporation, International Business Machines Corporation, Conexant Systems, Inc., Motorola, Inc., Advanced Micro Devices, Inc. and Analog Devices Inc. — were sued for patent infringement by Plasma Physics Corporation and Solar Physics Corporation. We have not been sued by Plasma Physics, Solar Physics, or any other party for infringement of any Plasma Physics or Solar Physics patent. Certain defendants in the case, however, contend that we allegedly have indemnification obligations and liability relating to these lawsuits. We believe that these matters will not have a material adverse impact on our business, financial condition, or results of operations. There can be no assurance, however, that we will prevail in the above lawsuit or in any other lawsuit filed in connection with the alleged indemnification obligations. If one or more parties were to prevail against us in such a suit and damages were awarded, the adverse impact on our business, financial condition, or results of operations could be material.

Linear Technology Corporation

On March 12, 2002, Linear Technology Corporation filed a complaint against Novellus, among other parties, in the Superior Court of the State of California for the County of Santa Clara. The complaint sought damages (including punitive damages) and injunctions for causes of actions involving alleged breach of contract, fraud, unfair competition, breach of warranty, and declaratory relief. We filed a demurrer to Linear's complaint, which the court granted on April 11, 2003, with leave to amend. On May 2, 2003, Linear filed a second amended complaint. We filed a demurrer to Linear's second amended complaint, which the court granted on August 14, 2003, with leave to amend. On September 15, 2003, Linear filed a third amended complaint. We filed a demurrer to Linear's third amended complaint, which the court granted on January 15, 2004, with leave to amend. Linear has not yet filed another complaint.

This litigation is in its early stages and is therefore inherently difficult to assess. We believe that this litigation will not have a material adverse impact on our business, financial condition, or results of operations. However, the outcome of patent disputes is often affected by uncertainty in the resolution of complex issues of fact and law. If Linear were to prevail against us, the adverse effect on our business, financial condition, or results of operations could be material.

Employment Litigation

On April 4, 2003, Thomas Graziani, et al. filed a class action lawsuit against Novellus in the United States District Court for the District of Oregon. On August 1, 2003, David Robinson, et al. filed a class action lawsuit against Novellus in the United States District Court for the Northern District of California, San Jose Division. Both lawsuits seek collective and/or class action status for field service engineers who work for Novellus and both lawsuits allege that field service engineers are entitled to compensatory damages in the form of overtime pay, liquidated damages, interest and attorneys' fees and costs. We are currently engaged in mediation with the plaintiffs in these actions. At a mediation held on March 1, 2004, the parties to both lawsuits agreed to a settlement to be documented on or before April 2, 2004. As of the date of this Annual Report on Form 10-K, there is no written agreement binding the parties. Moreover, the settlement requires court approval, which may or may not be received. Approval is expected to be sought in the second quarter of 2004. Because the settlement has not yet been documented or approved and because members of the class may be permitted to opt out of the class and file individual claims, we are unable to determine the total amount or a range of amounts for the settlement at this time. If efforts to settle these lawsuits are not successful, we intend to vigorously defend against them.

Other Litigation

We are a defendant or plaintiff in various other actions that arose in the normal course of business. We believe that the ultimate disposition of these matters will not have a material adverse effect on our business, financial condition or results of operations.

Note 12. Income Taxes

Significant components of the provision (benefit) for income taxes attributable to income (loss) before income taxes and cumulative effect of a change in accounting principle are as follows (in thousands):

	Years Ended December 31,		
	2003	2002	2001
Federal			
Current	$ 7,270	$(41,842)	$(40,645)
Deferred	(30,046)	19,346	72,765
	(22,776)	(22,496)	32,120
State			
Current	405	377	864
Deferred	(5,230)	(8,853)	70
	(4,825)	(8,476)	934
Foreign			
Current	17,315	11,544	6,816
Income tax benefits attributable to employee stock plan activity allocated to shareholders' equity	—	19,428	25,037
Total provision (benefit) for income taxes	$(10,286)	$ —	$ 64,907

Pre-tax income from foreign operations was approximately $51.7 million, $18.0 million and $15.0 million in 2003, 2002 and 2001, respectively.

Deferred income taxes reflect the net tax effects of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes. Significant components of our deferred tax assets and liabilities are as follows (in thousands):

	December 31,	
	2003	2002
Deferred tax assets:		
Reserves and accruals	$ 50,022	$ 42,716
Expenses not currently deductible	37,836	27,869
Capitalized in-process research and development	26,577	29,826
Deferred profit	19,937	25,527
Net operating loss carryforwards	108,413	71,374
Credits	47,026	29,188
Other	10,678	—
Total deferred tax assets	300,489	226,500
Valuation allowance	(76,510)	(57,028)
Deferred tax assets, net of valuation allowance	223,979	169,472
Deferred tax liabilities:		
Depreciation	(55,440)	(69,246)
Other	—	(29)
Total net deferred tax assets	$168,539	$100,197

The net increase (decrease) in the valuation allowance was $19.5 million, $49.4 million and ($3.1) million during the years ended December 31, 2003, 2002 and 2001, respectively. The valuation allowance balance at December 31, 2003 includes $38.0 million related to the acquired deferred tax assets of SpeedFam-IPEC which will be credited to goodwill when realized and $26.5 million related to stock option benefits that will be credited to equity when realized.

As of December 31, 2003, we had federal and state tax credit carryforwards of approximately $27.5 and $19.5 million, respectively. These credits include foreign tax credits for which a valuation allowance has been provided to the extent that they may not be utilized. The federal tax credit carryforwards expire in years 2006 through 2023. Of the state tax credit carryforwards, $16.8 million carries forward indefinitely and $2.7 million expires in years 2009 through 2011.

As of December 31, 2003, our federal net operating losses for tax return purposes were $298.4 million. A valuation allowance has been provided to the extent that we believe that the losses may not be utilized in future periods due to the limitations of Internal Revenue Code Section 382. If not utilized, these carryforwards will start to expire in 2020.

The provision (benefit) for income taxes differs from the provision calculated by applying the federal statutory tax rate to income (loss) before income taxes and cumulative effect of a change in accounting principle because of the following (in thousands):

	Years Ended December 31,		
	2003	2002	2001
Expected provision at 35%	$ (5,362)	$ 8,022	$73,282
State tax, net of federal benefit	(3,136)	(3,975)	2,886
Research and development credits	(2,000)	(5,144)	(6,783)
Export sales incentive	—	(1,199)	(7,328)
Valuation allowance increase (decrease)	322	(3,100)	(3,100)
Write-off of acquired IPR&D	—	3,151	—
Other	(110)	2,245	5,950
Total provision (benefit) for income taxes	$(10,286)	$ —	$64,907

Note 13. Shareholders' Equity

Other Comprehensive Income (Loss)

The components of accumulated other comprehensive income (loss), net of related taxes are as follows (in thousands):

	December 31,	
	2003	2002
Foreign currency translation adjustments	$ 4,685	$(1,461)
Unrealized loss on available-for-sale securities, net of tax	(113)	(285)
Accumulated other comprehensive income (loss)	$ 4,572	$(1,746)

Common Stock Repurchase Program

On September 19, 2001, our Board of Directors authorized a stock repurchase program of up to $500 million over the next two years. As of September 19, 2003, the end of the repurchase program, 3.2 million shares, or $79.5 million of common stock, had been repurchased.

Employee Stock Option Plans

We grant options to employees under several stock option plans. Under the 1992 Stock Option Plan, which expired in fiscal 2002, options to purchase up to 33,300,000 shares of Novellus' common stock were made available for grant at not less than fair market value. In May 2001, our shareholders approved the 2001 Stock Incentive Plan, the terms of which reserve 6,360,000 shares of common stock for future issuance. In December 2001, the Board of Directors approved the reservation of 6,000,000 shares of common stock for future issuance under the 2001 Non-Qualified Option Plan. In fiscal 2002, an additional 4,500,000 shares of common stock were reserved for future issuance under the 2001 Non-Qualified Option Plan. Options generally vest ratably over a four-year period on the anniversary of the date of grant or as determined by the Board of Directors. Stock options expire ten years after the date of grant.

Pursuant to the terms of the SpeedFam-IPEC acquisition agreement, we assumed SpeedFam-IPEC's 1991 Employee Incentive Stock Option Plan, 1992 Stock Option Plan, 1995 Stock Plan, 2001 Non-statutory Stock Option Plan and Stand-Alone Non-statutory Stock Option Agreement. These plans accounted for approximately 1,675,000 shares of common stock, of which 530,000 had not been granted as of the acquisition

date of December 6, 2002. These shares have been included in the stock option rollforward table presented below.

Information with respect to stock option activity is as follows (share data in thousands):

		Options Outstanding	
	Shares Available for Grant	Number of Shares	Weighted-Average Exercise Price
Balances at December 31, 2000	4,123	17,994	$22.47
Additional authorization	12,122	—	—
Options granted	(7,614)	7,614	$39.85
Options exercised	—	(2,506)	$14.04
Options canceled	543	(543)	$32.64
Balances at December 31, 2001	9,174	22,559	$29.04
Additional authorization	4,500	—	—
Assumption of SpeedFam-IPEC options	530	1,145	$42.85
Options granted	(6,292)	6,292	$33.34
Options exercised	—	(2,485)	$15.23
Options expired	(513)	—	$35.71
Options canceled	1,455	(1,455)	$36.58
Balances at December 31, 2002	8,854	26,056	$31.16
Options granted	(3,966)	3,966	$38.94
Options exercised	—	(3,073)	$18.70
Options expired	(503)	—	$45.82
Options canceled	1,651	(1,651)	$45.82
Balances at December 31, 2003	6,036	25,298	$32.80

The following table summarizes information about stock options outstanding as of December 31, 2003 (share data in thousands):

Options Outstanding				Options Exercisable	
Range of Exercise Prices	Options Outstanding at December 31, 2003	Weighted-Average Remaining Contractual Life (years)	Weighted-Average Exercise Price	Options Exercisable at December 31, 2003	Weighted-Average Exercise Price
$4.69-$25.55	6,041	5.09	$19.62	5,814	$19.60
$25.56-$30.05	5,111	8.69	$29.10	1,544	$28.89
$30.06-$35.89	2,920	7.21	$30.85	1,899	$30.52
$36.50-$38.70	5,283	8.03	$38.60	2,613	$38.69
$38.87-$253.71	5,943	8.48	$45.32	1,606	$51.09
$4.69-$253.71	25,298	7.47	$32.80	13,476	$29.66

The range of option exercise prices for options outstanding at December 31, 2003 is wide, primarily due to the impact of assumed options of acquired companies that had experienced significant price fluctuations.

Restricted Stock and Deferred Compensation

We award restricted stock to our employees, primarily vice presidents and senior executives, from our 1992 Stock Option Plan and our 2001 Stock Incentive Plan, collectively referred to as the Plans. We have awarded a total of 477,100 shares of common stock under the Plans, of which 249,100 shares of common stock remain outstanding as of December 31, 2003. Our restricted stock normally vests ratably or on a cliff basis over four or five years and is subject to forfeiture if employment terminates prior to vesting. Deferred compensation is recorded based on the market value of the restricted shares at grant and is presented as a reduction of shareholders' equity in our consolidated balance sheets. Deferred compensation is amortized as compensation expense over the vesting period, using the graded-vesting method. For the years ended December 31, 2003, 2002 and 2001, approximately $1.9 million, $1.7 million, and $1.5 million, respectively, was recorded as amortization expense related to restricted stock issuances.

In connection with the acquisition of SpeedFam-IPEC on December 6, 2002, we recorded deferred compensation of $3.1 million for the intrinsic value of unvested stock options we assumed. Approximately 328,000 shares of unvested stock options were assumed at the acquisition date. These stock options had exercise prices ranging from $11.22 to $324.53 per share, a weighted-average exercise price of $42.85, and a weighted-average contractual life of five years. The deferred compensation is presented as a reduction of shareholders' equity in our consolidated balance sheets and is being amortized as compensation expense over the remaining vesting period, using the graded-vesting method. For the years ended December 31, 2003 and 2002, approximately $1.4 million and $0.2 million, respectively, was recorded as amortization expense related to these stock options.

Employee Stock Purchase Plans

In December 1988 and May 1992, we adopted qualified Employee Stock Purchase Plans, referred to herein as the Purchase Plans, under Sections 421 and 423 of the Internal Revenue Code, and reserved 1,200,000 and 900,000 shares of common stock for issuance under the respective Purchase Plans. In April 1998, the Board of Directors approved amendments to the Purchase Plans, which were subsequently ratified by shareholders, increasing the number of shares available for issuance thereunder from 2,100,000 shares to 2,850,000 shares. In April 1999, the Board of Directors approved amendments to the Purchase Plans, which were subsequently ratified by shareholders, increasing the number of shares available for issuance thereunder from 2,850,000 shares to 3,900,000 shares. Under the Purchase Plans, qualified employees are entitled to purchase shares at 85% of the fair market value on specified dates. There were approximately 557,000, 366,000 and 309,000 shares issued under the Purchase Plans in 2003, 2002 and 2001, respectively. In fiscal 2002, an additional 1,000,000 shares of common stock were reserved for future issuance under the Purchase Plans. As of December 31, 2003, approximately 706,000 shares were reserved for future issuance under the Purchase Plans.

Employee Savings and Retirement Plan

We maintain a 401(k) retirement savings plan for our full-time employees. Participants in the 401(k) plan may contribute up to 20% of their annual salary, limited by the maximum dollar amount allowed by the Internal Revenue Code. In January 2000, we announced that we would contribute a percentage of each participating employee's salary deferral contributions or 50% of the first 6% of an employee's annual compensation, up to a maximum of $2,000. Our matching contributions are invested in Novellus common stock and, beginning on January 1, 2000, become fully vested at the end of the employee's third year of service. We recorded $3.5 million, $3.6 million and $4.7 million of expense in connection with matching contributions under the 401(k) plan for the years ended December 31, 2003, 2002 and 2001, respectively.

Note 14. Geographic Information Reporting and Major Customers

We operate primarily in one segment, the manufacturing, marketing and servicing of semiconductor equipment for thin film deposition, surface preparation and chemical mechanical planarization. In accordance with SFAS No. 131, "Disclosures About Segments of an Enterprise and Related Information," our chief operating decision-maker is the Chairman and Chief Executive Officer, who reviews operating results to make decisions about allocating resources and assessing performance for the entire company. All material operating units qualify for aggregation under SFAS No. 131, due to their identical customer base and similarities in economic characteristics, nature of products and services, and process for procurement, manufacturing and distribution processes. Since we primarily operate in one segment and in one group of similar products and services, all financial segment and product line information required by SFAS No. 131 can be found in the consolidated financial statements.

For the year ended December 31, 2003, two customers accounted for 27% and 12% of our net sales, respectively. For the year ended December 31, 2002, four customers accounted for 17%, 11%, 11% and 10% of our net sales, respectively. For the year ended December 31, 2001, one customer accounted for 16% of our total net sales.

For geographical reporting, revenues are attributed to the geographic location in which our subsidiaries are located. Long-lived property, plant and equipment, goodwill and other intangible assets are attributed to the geographic location in which the assets are located.

The following is a summary of operations by geographic area (in thousands):

2003	North America	Europe	Asia	Elimination	Consolidated
Sales to unaffiliated customers	$ 729,998	$24,965	$170,107	$ —	$ 925,070
Transfers between geographic locations	42,217	17,828	39,312	(99,357)	—
Total net sales	772,215	42,793	209,419	(99,357)	925,070
Operating income (loss)	$ (81,960)	$ 3,608	$ 46,766	$ —	$ (31,586)
Long-lived assets	503,952	915	1,700	—	506,567
All other identifiable assets	1,690,927	24,081	117,325	—	1,832,333
Total assets	$2,194,879	$24,996	$119,025	$ —	$2,338,900

2002	North America	Europe	Asia	Elimination	Consolidated
Sales to unaffiliated customers	$ 719,957	$ 8,031	$111,970	$ —	$ 839,958
Transfers between geographic locations	14,349	13,898	33,665	(61,912)	—
Total net sales	734,306	21,929	145,635	(61,912)	839,958
Operating income (loss)	$ (47,548)	$37,017	$ 4,730	$ —	$ (5,801)
Long-lived assets	175,095	3,815	1,016	—	179,926
All other identifiable assets	2,190,365	15,717	107,986	—	2,314,068
Total assets	$2,365,460	$19,532	$109,002	$ —	$2,493,994

2001		North America	Europe	Asia	Elimination
Sales to unaffiliated customers	$1,165,923	$ 7,425	$165,974	$ —	$1,339,322
Transfers between geographic locations	84,257	16,185	33,347	(133,789)	—
Total net sales	1,250,180	23,610	199,321	(133,789)	1,339,322
Operating income	$ 135,137	$ 2,170	$ 14,677	$ —	$ 151,984
Long-lived assets	172,494	608	4,499	—	177,601
All other identifiable assets	2,758,827	5,475	89,221	—	2,853,523
Total assets	$2,931,321	$ 6,083	$ 93,720	$ —	$3,031,124

Revenue for each geographic area is recognized from the locations within a designated geographic region in accordance with SAB 104, which superseded the earlier related guidance in SAB 101. Transfers and commission arrangements between geographic areas are at prices sufficient to recover a reasonable profit.

Note 15. Bad Debt Write-off (Recovery)

In September 2001, we determined that due to the financial difficulties facing one of our customers, an outstanding accounts receivable balance was at risk for collection. Accordingly, we recorded a write-off of $7.7 million. In the first quarter of 2002, all amounts under this accounts receivable balance were paid, resulting in a recovery of $7.7 million.

Note 16. Related Party Transactions

In March 2002, we began leasing an aircraft from NVLS I, LLC, a third-party entity wholly-owned by Richard S. Hill, our Chairman and Chief Executive Officer. Under the aircraft lease agreement, we incurred lease expense of approximately $0.8 and $0.2 million for the years ended December 31, 2003 and 2002.

A member of our Board of Directors, D. James Guzy, is also a member of the Board of Directors of Intel Corporation, one of our significant customers. Intel Corporation represented approximately 12%, 11% and 16% of net sales for the years ended December 31, 2003, 2002 and 2001, respectively. Intel Corporation also accounted for 6% and 18% of our accounts receivable as of December 31, 2003 and 2002, respectively.

From time to time we have made secured and unsecured relocation loans to our executive officers, vice presidents and key personnel. As of December 31, 2003, we do not have any outstanding loans to our executive officers as defined by the Securities and Exchange Commission. However, we do have outstanding loans to certain non-executive vice-presidents and key personnel. As of December 31, 2003 and 2002, the total outstanding balance of loans to non-executive vice presidents and key personnel was approximately $5.7 million and $6.0 million, respectively. Of the amount outstanding at December 31, 2003, $4.8 million was secured by collateral. Excluding relocation loans, all other loans bear interest.

Note 17. Quarterly Financial Data (Unaudited)

	Year Ended December 31, 2003			
	First Quarter	Second Quarter	Third Quarter[1]	Fourth Quarter
	(In thousands, except per share data)			
Net sales	$238,410	$239,050	$221,099	$226,511
Gross profit	$109,814	$105,322	$ 58,776	$106,088
Net income (loss) before cumulative effect of a change in accounting principle	$ 11,872	$ 7,430	$(34,788)	$ 10,452
Cumulative effect of change in accounting principle	—	—	$(62,780)	—
Net income (loss)	$ 11,872	$ 7,430	$(97,568)	$ 10,452
Basic and diluted net income (loss) per share before cumulative effect of a change in accounting principle	$ 0.08	$ 0.05	$ (0.22)	$ 0.07
Cumulative effect of change in accounting principle	—	—	$ (0.42)	—
Basic and diluted net income (loss) per share	$ 0.08	$ 0.05	$ (0.64)	$ 0.07
Shares used in basic per share calculations	149,434	149,950	151,280	152,057
Shares used in diluted per share calculations	152,229	153,034	151,280	156,580

	Year Ended December 31, 2002			
	First Quarter[2]	Second Quarter	Third Quarter[3]	Fourth Quarter[4]
	(In thousands, except per share data)			
Net sales	$169,679	$222,147	$230,495	$217,637
Gross profit	$ 71,530	$101,564	$109,382	$ 96,047
Net income	$ 3,836	$ 12,013	$ 4,083	$ 2,988
Basic and diluted net income per share	$ 0.03	$ 0.08	$ 0.03	$ 0.02
Shares used in basic per share calculations	144,255	145,120	143,691	144,416
Shares used in diluted per share calculations	150,624	151,053	146,094	147,219

(1) The third quarter 2003 results include restructuring and other charges of $62.5 million and a non-cash charge of $62.8 million, net of tax, as a cumulative effect of a change in accounting principle from the consolidation of properties previously accounted for as synthetic leases.

(2) The first quarter 2002 results include $9.0 million of pre-tax net benefit, which reflects the combined effect of a benefit of $7.7 million for recovery of an account receivable previously written-off and a $4.6 million gain on sale of an equity investment, partially offset by $3.3 million of severance charges.

(3) The third quarter 2002 results include a $17.0 million pre-tax charge for the write-off of debt issuance costs related to the retirement of the $880.0 million Liquid Yield Option Notes.

(4) The fourth quarter 2002 results include $3.2 million of pre-tax restructuring charges and an $11.5 million net loss from SpeedFam-IPEC operations subsequent to the close of the acquisition on December 6, 2002 to December 31, 2002. The $11.5 million loss contributed by SpeedFam-IPEC includes a $9.0 million in-process research and development charge.

REPORT OF ERNST & YOUNG LLP, INDEPENDENT AUDITORS

The Board of Directors and Shareholders

Novellus Systems, Inc.

We have audited the accompanying consolidated balance sheets of Novellus Systems, Inc. as of December 31, 2003 and 2002, and the related consolidated statements of operations, shareholders' equity, and cash flows for each of the three years in the period ended December 31, 2003. Our audits also included the financial statement schedule listed in the index at Item 15(a)(2). These financial statements and schedule are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements and schedule based on our audits.

We conducted our audits in accordance with auditing standards generally accepted in the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the consolidated financial position of Novellus Systems, Inc. as of December 31, 2003 and 2002 and the consolidated results of its operations and its cash flows for each of the three years in the period ended December 31, 2003, in conformity with accounting principles generally accepted in the United States. Also, in our opinion, the related financial statement schedule, when considered in relation to the basic financial statements taken as a whole, presents fairly in all material respects the information set forth therein.

As discussed in Note 6 to the consolidated financial statements, in 2002, Novellus changed its method of accounting for goodwill and other intangible assets in accordance with guidance provided in Statement of Financial Accounting Standards No. 142, "Goodwill and Other Intangible Assets."

As discussed in Note 10 to the consolidated financial statements, in 2003 Novellus changed its method of accounting for synthetic leases in accordance with FASB Interpretation No. 46, "Consolidation of Variable Interest Entities, an Interpretation of Accounting Research Bulletin No. 51."

ERNST & YOUNG LLP

San Jose, California
January 23, 2004

Item 9. ***Changes in and Disagreements with Accountants on Accounting and Financial Disclosure***

Not applicable.

Item 9a. ***Controls and Procedures***

Evaluation of Our Disclosure Controls and Internal Controls

As of the end of the period covered by this Annual Report on Form 10-K, we evaluated the effectiveness of the design and operation of our disclosure controls and procedures and our internal controls and procedures for financial reporting. This controls evaluation was performed under the supervision and with the participation of management, including our Chief Executive Officer (CEO) and Chief Financial Officer (CFO). Rules adopted by the Securities and Exchange Commission, or the SEC, require that in this section of the Annual Report on Form 10-K, we present the conclusions of the CEO and the CFO about the effectiveness of our disclosure controls and internal controls for financial reporting based on and as of the date of the controls evaluation.

CEO and CFO Certifications

The certifications of the CEO and the CFO required in accordance with Section 302 of the Sarbanes-Oxley Act of 2002 are filed as exhibits to this Annual Report on Form 10-K. This section of the Annual Report on Form 10-K contains the information concerning the controls evaluation referred to in the Section 302 certifications. This information should be read in conjunction with the Section 302 certifications for a more complete understanding of the topics presented.

Disclosure Controls and Internal Controls for Financial Reporting

Disclosure controls are procedures that are designed with the objective of ensuring that information required to be disclosed in our reports filed under the Securities Exchange Act of 1934, or the Exchange Act, such as this Annual Report on Form 10-K, is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms. Disclosure controls are also designed with the objective of ensuring that such information is accumulated and communicated to our management, including the CEO and CFO, as appropriate to allow timely decisions regarding required disclosure. Internal controls for financial reporting are procedures which are designed with the objective of providing reasonable assurance that our transactions are properly authorized, our assets are safeguarded against unauthorized or improper use and our transactions are properly recorded and reported, all to permit the preparation of our financial statements in conformity with accounting principles generally accepted in the United States of America.

Limitations on the Effectiveness of Controls

The company's management, including the CEO and CFO, do not expect that our disclosure controls or our internal controls for financial reporting will prevent all error and all fraud. A control system, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met. Further, the design of a control system must reflect the fact that there are resource constraints, and the benefits of controls must be considered relative to their costs. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that all control issues and instances of fraud, if any, within the company have been detected. These inherent limitations include the realities that judgments in decision-making can be faulty, and that breakdowns can occur because of simple error or mistake. Additionally, controls can be circumvented by the individual acts of some persons, by collusion of two or more people, or by management override of the controls. The design of any system of controls also is based in part upon certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions; over time, controls may become inadequate because of changes in conditions, or the degree of compliance with the policies or procedures may deteriorate. Because of the inherent limitations in a cost-effective control system, misstatements due to error or fraud may occur and not be detected.

Scope of the Controls Evaluation

The evaluation of our disclosure controls and our internal controls for financial reporting by our CEO and CFO included a review of the controls implemented by the company and the effect of the controls on the information generated for use in this Annual Report on Form 10-K. In the course of the controls evaluation, we sought to identify data errors, controls problems or acts of fraud and to confirm that appropriate corrective action, including process improvements, were being undertaken. This type of evaluation will be performed on a quarterly basis so that the conclusions concerning our controls effectiveness can be reported in our Quarterly Reports on Form 10-Q and our Annual Report on Form 10-K. Our internal controls for financial reporting are also evaluated on an ongoing basis by our outsourced internal audit department and by other personnel in our finance department. The overall goal of these various evaluation activities is to monitor our disclosure controls and our internal controls for financial reporting and to make modifications as necessary; our intent in this regard is that the disclosure controls and the internal controls for financial reporting will be maintained as dynamic systems that change (including improvements and corrections) as conditions warrant.

Among other matters, we sought in our evaluation to determine whether there were any "significant deficiencies" or "material weaknesses" in the company's internal controls for financial reporting, or whether the company had identified any acts of fraud involving personnel who have a significant role in the company's internal controls for financial reporting. This information was important both for the controls evaluation generally and because items 5 and 6 in the Section 302 certifications of the CEO and CFO require that the CEO and CFO disclose that information to our Board's Audit Committee and to our independent auditors and report on related matters in this section of the Annual Report on Form 10-K. In the professional auditing literature, "significant deficiencies" are referred to as "reportable conditions." These are control issues that could have a significant adverse effect on the ability to record, process, summarize and report financial data in the financial statements. A "material weakness" is defined in the auditing literature as a particularly serious reportable condition where the internal control for financial reporting does not reduce to a relatively low level the risk that misstatements caused by error or fraud may occur in amounts that would be material in relation to the financial statements and not be detected within a timely period by employees in the normal course of performing their assigned functions. We also sought to deal with other controls matters in the controls evaluation, and in each case if a problem was identified, we considered what revision, improvement and/or correction to make in accordance with our ongoing procedures. In accordance with SEC requirements, the CEO and CFO note that, during our most recent fiscal quarter, there have been no changes in internal controls for financial reporting that have actually affected or are reasonably likely to materially affect our internal controls for financial reporting.

Conclusions

Based upon the controls evaluation, our CEO and CFO have concluded that, subject to the limitations noted above, our disclosure controls are effective to ensure that material information relating to the company is made known to management, including the CEO and CFO, particularly during the period when our periodic reports are being prepared, and that our internal controls for financial reporting are effective to provide reasonable assurance that our financial statements are fairly presented in conformity with accounting principles generally accepted in the United States of America.

PART III

Item 10. ***Directors and Executive Officers of the Registrant***

The information required by this item is included under "Proposal No. 1: Election of Directors," "Other Information — Executive Officers" and "Compliance with Section 16(a) of the Exchange Act" in our Proxy Statement, to be filed in connection with our 2004 Annual Meeting of Shareholders, and is incorporated herein by reference.

Novellus has adopted a Code of Conduct that is designed to qualify as a "code of ethics" within the meaning of Section 406 of the Sarbanes-Oxley Act of 2002 and the rules promulgated thereunder. The Code

of Conduct is available on our website at **www.novellus.com.** To the extent required by law, any amendments to, or waivers from, any provision of the Code of Conduct will promptly disclosed to the public. To the extent permitted by such legal requirements, Novellus intends to make such public disclosure by posting the relevant material on our website in accordance with SEC rules.

Item 11. ***Executive Compensation***

The information required by this item is included under "Other Information — Executive Compensation" in our Proxy Statement, to be filed in connection with our 2004 Annual Meeting of Shareholders, and is incorporated herein by reference.

Item 12. ***Security Ownership of Certain Beneficial Owners and Management***

The information required by this item is included under "Other Information — Security Ownership of Certain Beneficial Owners and Management" in our Proxy Statement, to be filed in connection with our 2004 Annual Meeting of Shareholders, and is incorporated herein by reference.

Item 13. ***Certain Relationships and Related Transactions***

The information required by this item is included under "Other Information — Certain Transactions" in our Proxy Statement, to be filed in connection with our 2004 Annual Meeting of Shareholders, and is incorporated herein by reference.

Item 14. ***Principal Accountant Fees and Services***

Information concerning principal accountant fees and services and the audit committee's pre-approval policies and procedures appears in our 2003 Proxy Statement under the headings, "Audit Fees" and "All Other Fees", and is incorporated herein by reference.

PART IV

Item 15. ***Exhibits, Financial Statement Schedules, and Reports on Form 8-K***

(a) The following documents are filed as part of this report:

(1) Financial Statements and Report of Ernst & Young LLP, Independent Auditors
Consolidated Statements of Operations — Years Ended December 31, 2003, 2002, and 2001.
Consolidated Balance Sheets at December 31, 2003 and 2002.
Consolidated Statements of Cash Flows — Years Ended December 31, 2003, 2002, and 2001.
Consolidated Statement of Shareholders' Equity — Years Ended December 31, 2003, 2002 and 2001.
Notes to Consolidated Financial Statements.
Report of Ernst & Young LLP, Independent Auditors.

(2) Financial Statement Schedules
The following financial statement schedule is filed as part of this Report on Form 10-K and should be read in conjunction with the financial statements:
Schedule II — Valuation and Qualifying Accounts.
All other schedules are omitted because they are not required or the required information is included in the financial statements or notes thereto.

(3) Exhibits (numbered in accordance with Item 601 of Regulation S-K)

3.1(1) Amended and Restated Articles of Incorporation of Novellus.

3.2 Amended and Restated Bylaws of Novellus.

10.3(2)	Assignment and Assumption of Lessee's Interest in Lease (Units 8 and 9, Palo Alto) and Covenants, Conditions and Restrictions on Leasehold Interests (Units 1-12, Palo Alto) by and between Varian Associates, Inc. and Novellus dated May 7, 1997.
10.5(3)	Environmental Agreement by and between Varian Associates, Inc. and Novellus dated May 7, 1997.
10.8(4)	Settlement Agreement by and between Applied Materials, Inc. and Novellus dated May 4, 1997. Confidential treatment has been granted with respect to portions of this Exhibit.
*10.9(5)	Novellus' 1992 Stock Option Plan, together with forms of agreements thereunder.
*10.10(6)	Form of Restated Stock Purchase Agreement between Novellus and Jeff Benzing, Wilbert van den Hoek and certain other employees of Novellus dated December 16, 1999.
*10.11(7)	Novellus' 1992 Employee Stock Purchase Plan.
*10.12(8)	Form of Directors and Officers Indemnification Agreement.
*10.13(9)	Employment Agreement between Novellus and Peter Hanley dated June 15, 1992.
*10.14(10)	Offer Letter Agreement between Novellus and Richard S. Hill dated November 1, 1993.
*10.15(11)	Employment Agreement between Novellus and Richard S. Hill dated October 1, 1998.
*10.16(12)	Amendment to Employment Agreement between Novellus and Richard S. Hill dated December 16, 1999.
*10.18(13)	GaSonics International Corporation Amended and Restated 1994 Stock Option/Stock Issuance Plan, together with forms of agreements thereunder, as assumed by Novellus.
*10.19(14)	Gamma Precision Technology, Inc. 1998 Stock Option Plan, together with forms of agreements thereunder, as assumed by Novellus.
*10.20(15)	GaSonics International Corporation Supplemental Stock Option Plan, as assumed by Novellus.
10.21(16)	Form of Light Industrial Lease between Teachers Insurance and Annuity Association of America and GaSonics, Inc. for office space at 2730 Junction Avenue, San Jose, California.
10.22(17)	Participation Agreement among Novellus Systems, Inc., ABN AMRO Leasing, Inc., the participants named therein and ABN AMRO Bank N.V. dated April 18, 2001.
*10.23(18)	Novellus Systems, Inc. 2001 Stock Incentive Plan dated May 11, 2001, together with forms of agreement thereunder.
10.24(19)	Participation Agreement among Novellus Systems, Inc., ABN AMRO Leasing, Inc., Novellus Investment I, LLC and ABN AMRO Bank N.V. dated September 21, 2001.
10.25(20)	Amended and Restated Ground Lease Agreement between Novellus Systems, Inc. and ABN AMRO Leasing, Inc. dated September 21, 2001.
*10.26(21)	SpeedFam-IPEC, Inc. Amended and Restated 1995 Stock Plan, as assumed by Novellus.
*10.27(22)	SpeedFam-IPEC, Inc. 2001 Nonstatutory Stock Option Plan, together with forms of agreements thereunder, as assumed by Novellus.
*10.28(23)	Integrated Process Equipment Corporation 1992 Stock Option Plan, as assumed by Novellus.
*10.29(24)	SpeedFam International, Inc. Amended and Restated 1991 Employee Incentive Stock Option Plan, as assumed by Novellus.
*10.30(25)	SpeedFam-IPEC, Inc. Stand-Alone Stock Option Agreement dated June 14, 2001 between SpeedFam-IPEC, Inc. and Peter Simone, as assumed by Novellus.
10.31(26)	Lease Agreement between Seldin Properties and Integrated Process Equipment Corp. dated December 26, 1996.
10.32(27)	Purchase and Sale Agreement between Glen Una Management Company, Inc. and SpeedFam-IPEC, Inc. dated May 31, 2002.
10.33(28)	Lease Agreement between Phoenix Industrial Investment Partners, L.P. and SpeedFam-IPEC, Inc. dated June 21, 2002.
10.34(29)	First Amendment to Lease Agreement between Phoenix Industrial Investment Partners, L.P. and SpeedFam-IPEC, Inc. dated January 21, 2003.

10.35(30)	Lease Guaranty between Novellus and Phoenix Industrial Investment Partners, L.P. dated January 21, 2002.
10.36(31)	Separation Agreement between Novellus and Asuri Raghavan dated February 5, 2003.
*10.37	Amendment to Employment Agreement between Novellus and Richard S. Hill dated January 14, 2004.
*10.38	Letter Agreement between Novellus and Peter Hanley dated December 11, 2003.
*10.39	Letter Agreement between Novellus and Sasson Somekh dated January 23, 2004.
*10.40	Letter Agreement between Novellus and Thomas St. Dennis dated June 27, 2003.
*10.41	Restricted Stock Purchase Agreement between Novellus and Richard S. Hill dated December 13, 2002.
*10.42	Stand-Alone Stock Option Agreement dated January 23, 2004, between Novellus and Sasson Somekh.
*10.43	Stand-Alone Restricted Stock Award dated January 23, 2004, between Novellus and Sasson Somekh.
21.1	Subsidiaries of Novellus.
23.1	Consent of Ernst & Young LLP, Independent Auditors.
24.1	Power of Attorney (see page 75).
31.1	Certification of Richard S. Hill, Chairman of the Board of Directors and Chief Executive Officer of Novellus Systems, Inc. dated March 5, 2004 in accordance with 18 U.S.C. 1350, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2	Certification of Kevin S. Royal, Vice President and Chief Financial Officer of Novellus Systems, Inc. dated March 5, 2004 in accordance with 18 U.S.C. 1350, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32.1	Certification of Richard S. Hill, Chairman of the Board of Directors and Chief Executive Officer of Novellus Systems, Inc. dated March 5, 2004 in accordance with 18 U.S.C. 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
32.2	Certification of Kevin S. Royal, Vice President and Chief Financial Officer of Novellus Systems, Inc. dated March 5, 2004 in accordance with 18 U.S.C. 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.

(1) Incorporated by reference to the exhibit with the corresponding exhibit number in Novellus' Report on Form 10-K filed with the Securities and Exchange Commission on March 30, 2000.

(2) Incorporated by reference to Exhibit 2.3 to Novellus' Report on Form 8-K filed with the Securities and Exchange Commission on July 7, 1997.

(3) Incorporated by reference to Exhibit 2.6 to Novellus' Report on Form 8-K filed with the Securities and Exchange Commission on July 7, 1997.

(4) Incorporated by reference to Exhibit 10.1 to Novellus' Report on Form 10-Q filed with the Securities and Exchange Commission on August 11, 1997.

(5) Incorporated by reference to Exhibit 10.30 filed with Novellus' Report on Form 10-K filed with the Securities and Exchange Commission on February 26, 1993.

(6) Incorporated by reference to Exhibit 10.21 to Novellus' Report on Form 10-K filed with the Securities and Exchange Commission on March 30, 2000.

(7) Incorporated by reference to Exhibit 10.31 filed with Novellus' Report on Form 10-K filed with the Securities and Exchange Commission on February 26, 1993.

(8) Incorporated by reference to Exhibit 10.1 filed with Novellus' Report on Form 10-Q filed with the Securities and Exchange Commission on August 13, 2002.

(9) Incorporated by reference to Exhibit 10.34 filed with Novellus' Report on Form 10-K filed with the Securities and Exchange Commission on February 26, 1993.

(10) Incorporated by reference to Exhibit 10.41 filed with Novellus' Report on Form 10-K filed with the Securities and Exchange Commission on February 18, 1994.

(11) Incorporated by reference to Exhibit 10.27 to Novellus' Report on Form 10-K filed with the Securities and Exchange Commission on March 10, 1999.

(12) Incorporated by reference to Exhibit 10.27 to Novellus' Report on Form 10-K filed with the Securities and Exchange Commission on March 30, 2000.

(13) Incorporated by reference to Exhibit 10.31 to Novellus' Report on Form 10-K filed with the Securities and Exchange Commission on March 23, 2001.

(14) Incorporated by reference to Exhibit 10.32 to Novellus' Report on Form 10-K filed with the Securities and Exchange Commission on March 23, 2001.

(15) Incorporated by reference to Exhibit 10.33 to Novellus' Report on Form 10-K filed with the Securities and Exchange Commission on March 23, 2001.

(16) Incorporated by reference to Exhibit 10.34 to Novellus' Report on Form 10-K filed with the Securities and Exchange Commission on March 23, 2001.

(17) Incorporated by reference to Exhibit 10.6 to Novellus' Report on Form 10-Q filed with the Securities and Exchange Commission on May 15, 2001.

(18) Incorporated by reference to Exhibit 10.7 to Novellus' Report on Form 10-Q filed with the Securities and Exchange Commission on May 15, 2001.

(19) Incorporated by reference to Exhibit 10.1 to Novellus' Report on Form 10-Q filed with the Securities and Exchange Commission on November 13, 2001.

(20) Incorporated by reference to Exhibit 10.2 to Novellus' Report on Form 10-Q filed with the Securities and Exchange Commission on November 13, 2001.

(21) Incorporated by reference to Exhibit 10.30 to Novellus' Report on Form 10-K filed with the Securities and Exchange Commission on March 5, 2003.

(22) Incorporated by reference to Exhibit 10.31 to Novellus' Report on Form 10-K filed with the Securities and Exchange Commission on March 5, 2003.

(23) Incorporated by reference to Exhibit 10.32 to Novellus' Report on Form 10-K filed with the Securities and Exchange Commission on March 5, 2003.

(24) Incorporated by reference to Exhibit 10.33 to Novellus' Report on Form 10-K filed with the Securities and Exchange Commission on March 5, 2003.

(25) Incorporated by reference to Exhibit 10.34 to Novellus' Report on Form 10-K filed with the Securities and Exchange Commission on March 5, 2003.

(26) Incorporated by reference to Exhibit 10.35 to Novellus' Report on Form 10-K filed with the Securities and Exchange Commission on March 5, 2003.

(27) Incorporated by reference to Exhibit 10.36 to Novellus' Report on Form 10-K filed with the Securities and Exchange Commission on March 5, 2003.

(28) Incorporated by reference to Exhibit 10.37 to Novellus' Report on Form 10-K filed with the Securities and Exchange Commission on March 5, 2003.

(29) Incorporated by reference to Exhibit 10.38 to Novellus' Report on Form 10-K filed with the Securities and Exchange Commission on March 5, 2003.

(30) Incorporated by reference to Exhibit 10.39 to Novellus' Report on Form 10-K filed with the Securities and Exchange Commission on March 5, 2003.

(31) Incorporated by reference to Exhibit 10.29 to Novellus' Report on Form 10-K filed with the Securities and Exchange Commission on March 21, 2002.

* Management contracts or compensatory plans or arrangements.

(b) Reports on Form 8-K:

On October 14, 2003, Novellus furnished a report on Form 8-K under Items 7 and 12 announcing our results of operations for the fiscal quarter ended September 27, 2003.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities and Exchange Act of 1934, the Registrant has duly caused this Report on Form 10-K to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of San Jose, State of California on this 12th day of March, 2004.

NOVELLUS SYSTEMS, INC.

By: /s/ RICHARD S. HILL
Richard S. Hill
Chairman of the Board of Directors and Chief Executive Officer

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Richard S. Hill and Kevin S. Royal, and each of them, his attorneys-in-fact, each with the power of substitution, for him in any and all capacities, to sign any amendments to this Annual Report on Form 10-K and to file the same, with exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, hereby ratifying and confirming all that each of said attorneys-in-fact, or his substitute or substitutes, may do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Exchange Act of 1934, this Annual Report on Form 10-K has been signed by the following persons on behalf of the Registrant in the capacities and on the date indicated.

Signature	Title	Date
/s/ RICHARD S. HILL Richard S. Hill	Chairman of the Board of Directors and Chief Executive Officer (Principal Executive Officer)	March 12, 2004
/s/ KEVIN S. ROYAL Kevin S. Royal	Vice President and Chief Financial Officer(Principal Financial Officer and Principal Accounting Officer)	March 12, 2004
/s/ D. JAMES GUZY D. James Guzy	Director	March 12, 2004
/s/ J. DAVID LITSTER J. J. David Litster J.	Director	March 12, 2004
/s/ YOSHIO NISHI Yoshio Nishi	Director	March 12, 2004
/s/ GLEN POSSLEY Glen Possley	Director	March 12, 2004
/s/ WILLIAM R. SPIVEY William R. Spivey	Director	March 12, 2004
/s/ ANN D. RHOADS Ann D. Rhoads	Director	March 12, 2004
/s/ DELBERT WHITAKER Delbert Whitaker	Director	March 12, 2004

SCHEDULE II

VALUATION AND QUALIFYING ACCOUNTS

Description	Balance at Beginning of Period	Charged to Expense	Write-offs	Recoveries	Balance at End of Period
			(In thousands)		
Year Ended December 31, 2001					
Allowance for Doubtful Accounts	$ 5,392	$9,209	$(211)	$ —	$14,390
Year Ended December 31, 2002					
Allowance for Doubtful Accounts	14,390	1,042	(431)	(7,662)	7,339
Year Ended December 31, 2003					
Allowance for Doubtful Accounts	7,339	—	(67)	383	7,655

EXHIBIT INDEX

3.1(1)	Amended and Restated Articles of Incorporation of Novellus.
3.2	Amended and Restated Bylaws of Novellus.
10.3(2)	Assignment and Assumption of Lessee's Interest in Lease (Units 8 and 9, Palo Alto) and Covenants, Conditions and Restrictions on Leasehold Interests (Units 1-12, Palo Alto) by and between Varian Associates, Inc. and Novellus dated May 7, 1997.
10.5(3)	Environmental Agreement by and between Varian Associates, Inc. and Novellus dated May 7, 1997.
10.8(4)	Settlement Agreement by and between Applied Materials, Inc. and Novellus dated May 4, 1997. Confidential treatment has been granted with respect to portions of this Exhibit.
*10.9(5)	Novellus' 1992 Stock Option Plan, together with forms of agreements thereunder.
*10.10(6)	Form of Restated Stock Purchase Agreement between Novellus and Jeff Benzing, Wilbert van den Hoek and certain other employees of Novellus dated December 16, 1999.
*10.11(7)	Novellus' 1992 Employee Stock Purchase Plan.
*10.12(8)	Form of Directors and Officers Indemnification Agreement.
*10.13(9)	Employment Agreement between Novellus and Peter Hanley dated June 15, 1992.
*10.14(10)	Offer Letter Agreement between Novellus and Richard S. Hill dated November 1, 1993.
*10.15(11)	Employment Agreement between Novellus and Richard S. Hill dated October 1, 1998.
*10.16(12)	Amendment to Employment Agreement between Novellus and Richard S. Hill dated December 16, 1999.
*10.18(13)	GaSonics International Corporation Amended and Restated 1994 Stock Option/Stock Issuance Plan, together with forms of agreements thereunder, as assumed by Novellus.
*10.19(14)	Gamma Precision Technology, Inc. 1998 Stock Option Plan, together with forms of agreements thereunder, as assumed by Novellus.
*10.20(15)	GaSonics International Corporation Supplemental Stock Option Plan, as assumed by Novellus.
10.21(16)	Form of Light Industrial Lease between Teachers Insurance and Annuity Association of America and GaSonics, Inc. for office space at 2730 Junction Avenue, San Jose, California.
10.22(17)	Participation Agreement among Novellus Systems, Inc., ABN AMRO Leasing, Inc., the participants named therein and ABN AMRO Bank N.V. dated April 18, 2001.
*10.23(18)	Novellus Systems, Inc. 2001 Stock Incentive Plan dated May 11, 2001, together with forms of agreement thereunder.
10.24(19)	Participation Agreement among Novellus Systems, Inc., ABN AMRO Leasing, Inc., Novellus Investment I, LLC and ABN AMRO Bank N.V. dated September 21, 2001.
10.25(20)	Amended and Restated Ground Lease Agreement between Novellus Systems, Inc. and ABN AMRO Leasing, Inc. dated September 21, 2001.
*10.26(21)	SpeedFam-IPEC, Inc. Amended and Restated 1995 Stock Plan, as assumed by Novellus.
*10.27(22)	SpeedFam-IPEC, Inc. 2001 Nonstatutory Stock Option Plan, together with forms of agreements thereunder, as assumed by Novellus.
*10.28(23)	Integrated Process Equipment Corporation 1992 Stock Option Plan, as assumed by Novellus.
*10.29(24)	SpeedFam International, Inc. Amended and Restated 1991 Employee Incentive Stock Option Plan, as assumed by Novellus.
*10.30(25)	SpeedFam-IPEC, Inc. Stand-Alone Stock Option Agreement dated June 14, 2001 between SpeedFam-IPEC, Inc. and Peter Simone, as assumed by Novellus.
10.31(26)	Lease Agreement between Seldin Properties and Integrated Process Equipment Corp. dated December 26, 1996.
10.32(27)	Purchase and Sale Agreement between Glen Una Management Company, Inc. and SpeedFam-IPEC, Inc. dated May 31, 2002.
10.33(28)	Lease Agreement between Phoenix Industrial Investment Partners, L.P. and SpeedFam-IPEC, Inc. dated June 21, 2002.

10.34(29)	First Amendment to Lease Agreement between Phoenix Industrial Investment Partners, L.P. and SpeedFam-IPEC, Inc. dated January 21, 2003.
10.35(30)	Lease Guaranty between Novellus and Phoenix Industrial Investment Partners, L.P. dated January 21, 2002.
10.36(31)	Separation Agreement between Novellus and Asuri Raghavan dated February 5, 2003.
*10.37	Amendment to Employment Agreement between Novellus and Richard S. Hill dated January 14, 2004.
*10.38	Letter Agreement between Novellus and Peter Hanley dated December 11, 2003.
*10.39	Letter Agreement between Novellus and Sasson Somekh dated January 23, 2004.
*10.40	Letter Agreement between Novellus and Thomas St. Dennis dated June 27, 2003.
*10.41	Restricted Stock Purchase Agreement between Novellus and Richard S. Hill dated December 13, 2002.
*10.42	Stand-Alone Stock Option Agreement dated January 23, 2004, between Novellus and Sasson Somekh.
*10.43	Stand-Alone Restricted Stock Award dated January 23, 2004, between Novellus and Sasson Somekh.
21.1	Subsidiaries of Novellus.
23.1	Consent of Ernst & Young LLP, Independent Auditors.
24.1	Power of Attorney (see page 75).
31.1	Certification of Richard S. Hill, Chairman of the Board of Directors and Chief Executive Officer of Novellus Systems, Inc. dated March 5, 2004 in accordance with 18 U.S.C. 1350, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2	Certification of Kevin S. Royal, Vice President and Chief Financial Officer of Novellus Systems, Inc. dated March 5, 2004 in accordance with 18 U.S.C. 1350, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32.1	Certification of Richard S. Hill, Chairman of the Board of Directors and Chief Executive Officer of Novellus Systems, Inc. dated March 5, 2004 in accordance with 18 U.S.C. 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
32.2	Certification of Kevin S. Royal, Vice President and Chief Financial Officer of Novellus Systems, Inc. dated March 5, 2004 in accordance with 18 U.S.C. 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.

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(1) Incorporated by reference to the exhibit with the corresponding exhibit number in Novellus' Report on Form 10-K filed with the Securities and Exchange Commission on March 30, 2000.

(2) Incorporated by reference to Exhibit 2.3 to Novellus' Report on Form 8-K filed with the Securities and Exchange Commission on July 7, 1997.

(3) Incorporated by reference to Exhibit 2.6 to Novellus' Report on Form 8-K filed with the Securities and Exchange Commission on July 7, 1997.

(4) Incorporated by reference to Exhibit 10.1 to Novellus' Report on Form 10-Q filed with the Securities and Exchange Commission on August 11, 1997.

(5) Incorporated by reference to Exhibit 10.30 filed with Novellus' Report on Form 10-K filed with the Securities and Exchange Commission on February 26, 1993.

(6) Incorporated by reference to Exhibit 10.21 to Novellus' Report on Form 10-K filed with the Securities and Exchange Commission on March 30, 2000.

(7) Incorporated by reference to Exhibit 10.31 filed with Novellus' Report on Form 10-K filed with the Securities and Exchange Commission on February 26, 1993.

(8) Incorporated by reference to Exhibit 10.1 filed with Novellus' Report on Form 10-Q filed with the Securities and Exchange Commission on August 13, 2002.

(9) Incorporated by reference to Exhibit 10.34 filed with Novellus' Report on Form 10-K filed with the Securities and Exchange Commission on February 26, 1993.

(10) Incorporated by reference to Exhibit 10.41 filed with Novellus' Report on Form 10-K filed with the Securities and Exchange Commission on February 18, 1994.

(11) Incorporated by reference to Exhibit 10.27 to Novellus' Report on Form 10-K filed with the Securities and Exchange Commission on March 10, 1999.

(12) Incorporated by reference to Exhibit 10.27 to Novellus' Report on Form 10-K filed with the Securities and Exchange Commission on March 30, 2000.

(13) Incorporated by reference to Exhibit 10.31 to Novellus' Report on Form 10-K filed with the Securities and Exchange Commission on March 23, 2001.

(14) Incorporated by reference to Exhibit 10.32 to Novellus' Report on Form 10-K filed with the Securities and Exchange Commission on March 23, 2001.

(15) Incorporated by reference to Exhibit 10.33 to Novellus' Report on Form 10-K filed with the Securities and Exchange Commission on March 23, 2001.

(16) Incorporated by reference to Exhibit 10.34 to Novellus' Report on Form 10-K filed with the Securities and Exchange Commission on March 23, 2001.

(17) Incorporated by reference to Exhibit 10.6 to Novellus' Report on Form 10-Q filed with the Securities and Exchange Commission on May 15, 2001.

(18) Incorporated by reference to Exhibit 10.7 to Novellus' Report on Form 10-Q filed with the Securities and Exchange Commission on May 15, 2001.

(19) Incorporated by reference to Exhibit 10.1 to Novellus' Report on Form 10-Q filed with the Securities and Exchange Commission on November 13, 2001.

(20) Incorporated by reference to Exhibit 10.2 to Novellus' Report on Form 10-Q filed with the Securities and Exchange Commission on November 13, 2001.

(21) Incorporated by reference to Exhibit 10.30 to Novellus' Report on Form 10-K filed with the Securities and Exchange Commission on March 5, 2003.

(22) Incorporated by reference to Exhibit 10.31 to Novellus' Report on Form 10-K filed with the Securities and Exchange Commission on March 5, 2003.

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(31) Incorporated by reference to Exhibit 10.29 to Novellus' Report on Form 10-K filed with the Securities and Exchange Commission on March 21, 2002.

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* Management contracts or compensatory plans or arrangements.

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