AMTECH SYSTEMS INC
Form S-1
December 22, 2006

As filed with the Securities and Exchange Commission on December 22, 2006

Registration No. 333-

# UNITED STATES
# SECURITIES AND EXCHANGE COMMISSION
**WASHINGTON, D.C. 20549**

# FORM S-1
**REGISTRATION STATEMENT**
**UNDER**
**THE SECURITIES ACT OF 1933**

# AMTECH SYSTEMS, INC.
**(Exact name of registrant as specified in its charter)**

| **Arizona** | **3559** | **86-0411215** |
|---|---|---|
| **(State of incorporation)** | **(Primary Standard Industrial Classification Code No.)** | **(I.R.S. Employer Identification No.)** |

**131 South Clark Drive**
**Tempe, Arizona 85281**
**(480) 967-5146**
**(Address, including zip code and telephone number, including area code of registrant s principal executive offices)**

**Bradley C. Anderson**
**Vice President Finance, Chief Financial Officer**
**Amtech Systems, Inc.**
**131 South Clark Drive**
**Tempe, Arizona 85281**
**(480) 967-5146**
**(Name, address, including zip code and telephone number, including area code, of agent for service)**

*with copies to:*

**Christopher D. Johnson, Esq.**
**Christopher A. Van Tuyl, Esq.**
**Squire, Sanders & Dempsey L.L.P.**
**Two Renaissance Square**
**40 North Central Avenue, Suite 2700**
**Phoenix, Arizona 85004**
**(602) 528-4000**

**Jeffrey Harrell, Esq.**
**Gabriella Lombardi, Esq.**
**Pillsbury Winthrop Shaw Pittman LLP**
**2475 Hanover Street**
**Palo Alto, California 94304**
**(650) 233-4500**

**Approximate date of commencement of proposed sale to the public:** As soon as practicable after this registration statement becomes effective.

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933 check the following box: o

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. o

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. o

If this Form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. o

**CALCULATION OF REGISTRATION FEE**

| Title of Each Class of Securities to be Registered | Proposed Maximum Aggregate Offering Price(1)(2) | Amount of Registration Fee(2) |
|---|---|---|
| Common Stock, par value $0.01 per share | $ 15,000,000 | $ 1,605 |

(1) Includes shares of common stock that may be purchased by the underwriters to cover over-allotments, if any.
(2) Estimated solely for the purpose of calculating the registration fee pursuant to Rule 457(o) under the Securities Act of 1933, as amended.

**The registrant hereby amends this registration statement on such date or dates as may be necessary to delay its effective date until the registrant shall file a further amendment which specifically states that this registration statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933 or until the registration statement shall become effective on such date as the Commission, acting pursuant to said Section 8(a), may determine.**

**SUBJECT TO COMPLETION DATED , 2006**

**Prospectus**

**[_____] Shares of Common Stock**
**$[_____] Per Share**

We are selling [ ] shares of our common stock and the selling shareholders named in this prospectus are selling [ ] shares of our common stock. We will not receive any of the proceeds of sales by the selling shareholders.

Our common stock trades on the NASDAQ Global Market under the symbol ASYS. On December 21, 2006, the last sale price of our common stock as reported on the NASDAQ Global Market was $7.13 per share.

We have granted the underwriters the right to purchase up to an additional [_____] shares of common stock solely to cover over-allotments of shares.

**Investing in our common stock involves a high degree of risk.**
**See Risk Factors beginning on page 8.**

| | Per Share | Total |
|---|---|---|
| Public offering price | $ | $ |
| Underwriting discount and commissions | $ | $ |
| Proceeds, to us (before expenses) | $ | $ |
| Proceeds, to selling shareholders (before expenses) | $ | $ |

The underwriters expect to deliver the shares to purchasers on or about , 2007.

**Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the adequacy or accuracy of this prospectus. Any representation to the contrary is a criminal offense.**

**C. E. UNTERBERG, TOWBIN**

The date of this prospectus is , 2006.

**TABLE OF CONTENTS**

**SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS**

This prospectus and the documents we incorporate by reference contain certain forward-looking statements that involve a number of risks and uncertainties.

Certain information contained or incorporated by reference in this prospectus and the documents we incorporate by reference contain statements that are forward-looking in nature. All statements included or incorporated by reference in this prospectus, or made by the management of Amtech Systems, Inc. and its subsidiaries ( Amtech ), other than statements of historical fact, are hereby identified as forward-looking statements (as such term is defined in Section 27A of the Securities Act of 1933, as amended (the Securities Act ), and Section 21E of the Securities Exchange Act of 1934, as amended). Examples of forward-looking statements include statements regarding our future financial results, operating results, business strategies, projected costs, products under development, competitive positions and plans and objectives of Amtech and our management for future operations. In some cases, forward-looking statements can be identified by terminology such as may, will, should, would, expects, plans, anticipates, intends, believes, estimates, predicts, potential, continue, terms or other comparable terminology. Any expectations based on these forward-looking statements are subject to risks and uncertainties and other important factors, including the Risk Factors discussed herein. These and many other factors could affect our future operating results and financial condition and could cause actual results to differ materially from expectations based on forward-looking statements made in this document or elsewhere by us or on our behalf. All references to we, our, us, or Amtech refer to Amtech Systems, Inc. and its subsidiaries.

We undertake no obligation to publicly update or revise any forward-looking statements, whether as a result of new information, future events or otherwise, after the date of this prospectus to conform them to actual results. All of the forward-looking statements are qualified in their entirety by reference to the factors discussed under the caption Risk Factors.

We caution the reader that these risk factors may not be exhaustive. We operate in a continually changing business environment and new risk factors emerge from time to time. Management cannot predict such new risk factors, nor can it assess the impact, if any, of such new risk factors on our businesses or the extent to which any factor or combination of factors may cause actual results to differ materially from those projected in any forward-looking statements. In light of these risks, uncertainties and assumptions, the forward-looking events discussed in this prospectus and the documents we incorporate by reference might not occur.

For these statements, we claim the protection of the safe harbor for forward-looking statements contained in Section 21E of the Securities Act.

You should carefully read this prospectus and the documents incorporated by reference in their entirety. They contain information that you should consider when making your investment decision.

This prospectus contains market and other data that we obtained from industry sources. These sources do not guarantee the accuracy or completeness of their information. Although we believe that these sources are reliable, we have not independently verified the information.

## PROSPECTUS SUMMARY

*This summary highlights selected information from this prospectus and does not contain all of the information that you need to consider in making your investment decision. You should read the entire prospectus, including the risks of investing discussed under Risk Factors beginning on page 8 and the following summary together with the more detailed information regarding our company, the shares, our financial statements and the notes to those statements and the other documents incorporated by reference to this prospectus and the exhibits to the registration statement of which this prospectus is a part.*

*References in this prospectus to Amtech, the Company, we, us, and our, refer to Amtech Systems, Inc. and its subsidiaries, unless otherwise specified.*

## OUR COMPANY

We are a leading supplier of horizontal diffusion furnace systems used for semiconductor and solar (photovoltaic) cell manufacturing and recognized in the markets that we serve for our technology and our brands. We operate in two business segments: semiconductor equipment and polishing supplies. Our semiconductor equipment is sold under the well-known and respected brand names of Tempress Systems and Bruce Technologies. Our semiconductor segment has customers in both the semiconductor industry and the solar industry. Within the semiconductor industry, we serve a market focused on manufacturers of analog, power, automotive and microcontroller chips with geometries greater than 0.3 microns, denoted as μ, which we believe minimizes direct competition with significantly larger suppliers of semiconductor equipment. Within the solar industry, we provide diffusion and automation equipment to solar cell manufacturers. Under the P.R. Hoffman brand, we believe we are also a leading supplier of insert carriers to manufacturers of silicon wafers, and provide lapping and polishing consumable products as well as equipment used in various industries.

We have been providing manufacturing solutions to the semiconductor industry for over 30 years and are leveraging our technology and industry presence in an effort to expand our penetration into the solar industry. Our customers use our furnaces to manufacture semiconductors, solar cells, silicon wafers and microelectromechanical systems, or MEMS, which are used in end markets such as telecommunications, consumer electronics, computers, automotive, hand-held devices and solar industry products. To complement our research and development efforts, we also sell our furnaces to research institutes and universities.

Driven by internal and external growth, our net revenue increased 45% year over year in both fiscal 2005 and 2006 to $27.9 million and $40.4 million, respectively. During the fourth quarter of fiscal 2004, we acquired the Bruce Technologies horizontal furnace product line, significantly contributing to the increase in net revenue for fiscal 2005. During fiscal 2006, net revenue increased primarily because of higher capital investment by our semiconductor customers driven by the growth in worldwide demand for electronic products and integrated circuits, as well as the increased demand for solar industry products. Our fiscal 2006 net revenue included a multi-furnace order of approximately $5.2 million from one customer. While we expect follow-on orders from this customer, we do not anticipate receiving an order of this magnitude in fiscal 2007 and, therefore, expect our sales to the semiconductor industry over the near term to be flat or slightly decrease.

We expect, however, our sales to solar cell manufacturers to increase in fiscal 2007. As of September 30, 2006, our backlog from solar industry orders, which we expect to ship in fiscal 2007, was $7.6 million generated from $8.0 million in orders in fiscal 2006. Orders generated in fiscal 2005 were $3.8 million. Because our orders are typically subject to cancellation or delay by the customer, our backlog at any particular point in time is not necessarily representative of actual sales for succeeding periods, nor is backlog any assurance that we will realize profit from completing these orders. Net Revenue from solar industry sales were $2.8 million and $1.4 million in fiscal 2006 and 2005, respectively. We expect the solar industry to continue to grow as a result of greater interest in environmentally friendly energy alternatives, increased costs of fossil fuels, increased global demand for electricity, solar industry efforts to reduce manufacturing costs and concern over the United States dependence on foreign oil. We plan to continue capitalizing on this trend by improving our existing products and processes for the solar industry, by increasing our solar sales and marketing activities and by acquiring or developing additional products for that industry.

**COMPETITIVE STRENGTHS**

We believe that we are a leader in the markets we serve as a result of the following competitive strengths:

*Leading Market Share and Recognized Brand Names.* The Tempress, Bruce Technologies and P.R. Hoffman brands have long been recognized in our industry and identified with high-quality products, innovative solutions and dependable service. We believe that we are a leading supplier with respect to the markets that we serve. Additionally, we believe that our brand recognition and experience will allow us to capitalize on the market opportunities that exist in the solar industry and realize greater demand for our products than most of our competitors.

We have been providing horizontal diffusion furnaces and polishing supplies and equipment to our customers for over 30 years. We have sold and installed over 900 horizontal furnaces worldwide and benefit from the largest installed customer base in the semiconductor industry, which leads to significant replacement and expansion demand. Customers that have purchased our furnaces can leverage their investment in training, spare parts inventory and other costs by acquiring additional equipment from us. We also have an extensive retrofit, parts and service business, which typically generates higher margins than our equipment business.

*Experienced Management Team.* We are led by a highly experienced management team. Our CEO has over 33 years of industry experience, including 25 years with our company. Our three general managers have an average of over 19 years of semiconductor industry experience and an average of 17 years with our company (including predecessor companies).

*Established, Diversified Customer Base.* We have long-standing relationships with many of our top customers, which we believe remain strong. We maintain a broad base of customers, including leading semiconductor and wafer manufacturing companies, as well as solar cell manufacturers. In fiscal 2006, our largest customer accounted for approximately 17% of our net revenue, and our top 10 customers collectively represented approximately 58% of our net revenue. In fiscal 2005, no single customer accounted for more than 10% of our net revenue. In fiscal 2004, our largest customer accounted for approximately 10% of our net revenue. Our largest customer has been different in each of the last three fiscal years.

*Proven Acquisition Track Record.* Over the last twelve years we have developed a successful acquisition program and have completed the acquisition and integration of three significant businesses. In 1994, we acquired certain assets of Tempress and hired Tempress s engineers to develop our first models of the Tempress horizontal diffusion furnaces for production in The Netherlands. In July 1997, we acquired substantially all of the assets of P.R. Hoffman. This acquisition enabled us to offer new products, including lapping and polishing carriers, polishing templates, lapping and polishing machines and related consumable and spare parts, to our existing customer base as well as to target new customers. In July 2004, we acquired the Bruce Technologies line of semiconductor horizontal furnace operations, product lines and other assets from Kokusai Semiconductor Equipment Corporation ( Kokusai ), a wholly owned subsidiary of Hitachi, and its affiliate, Kokusai Electric Europe, GmbH. Each of the above acquisitions has contributed to our growth in net revenue and profitability.

*Technical Expertise.* We have highly trained and experienced mechanical, chemical, environmental, electronic, hardware and software engineers and support personnel. Our engineering group possesses core competencies in product applications and support systems, sophisticated controls, chemical vapor deposition, diffusion and pyrogenic processes, robotics, vacuum systems, ultra clean applications and software driven control packages. We believe this expertise enables us to design, develop and deliver high-quality, technically-advanced integrated product solutions for semiconductor and solar cell manufacturing customers.

*Leading Technology Solutions and New Product Development*. We pursue a partnering-based approach, in which our engineering and development teams work closely with our customers to ensure our products are tailored to meet our customers specific requirements. We believe this approach enables us to more closely align ourselves with our customers and provide superior systems.

We believe our line of horizontal diffusion furnaces, which allow high wafer-per-hour throughput, is more technologically advanced than most of our competitors equipment. The design of our furnace allows high wafer-per-hour throughput and increases reliability. In addition, the processing and temperature control systems within the furnace provide diverse proven process capabilities, enabling the application of high-quality films onto silicon wafers.

We recently developed a small batch vertical furnace jointly with a major European customer and are currently developing five different thin film processes for use with this furnace. We retain full ownership of this technology. We shipped two of these systems in fiscal 2005 and one in fiscal 2006. We anticipate that this system will have much of the same process capability as other vertical furnaces in the marketplace, but with a lower cost than that of our competitors. In addition, in 2006, we internally developed a machine to produce precision thickness wafer carriers, which we intend to sell as a premium product and which we expect will increase our sales to the carrier market.

*Geographically Diverse Customer Base.* We believe that our geographically diverse revenue stream helps to minimize our exposure to fluctuations in any one market and maximize our access to potential customers relative to our competitors with geographically concentrated operations. The geographic distribution of our net revenues from fiscal 2004 through 2006 were as follows:

| | 2006 | 2005 | 2004 |
|---|---|---|---|
| Asia | 41% | 36% | 33% |
| North America | 35% | 40% | 36% |
| Europe | 24% | 24% | 31% |

**GROWTH STRATEGY**

We intend to leverage our competitive strengths through a combination of internal and external growth strategies.

***Internal Growth***

Our strategy for internal growth includes: expanding on growth opportunities in the solar industry and the Asia-Pacific market; accelerating new product and technology development; enhancing our sales and marketing capabilities; and leveraging our installed base.

*Expanding on Growth Opportunities in the Solar Industry.* We have had recent success in increasing our sales to the solar industry, which resulted in $10 million in solar orders between September 1, 2005 and September 30, 2006. The increase in orders from solar cell manufacturers is due to our focused product development and marketing efforts, as well as to growth in the solar industry. We believe the growth in the solar industry is primarily attributable to: greater interest in environmentally friendly energy alternatives; increased costs of fossil fuels; increased global demand for electricity; solar industry efforts to reduce manufacturing costs; and global concern over dependence on politically unstable countries for oil.

Global demand for electricity is expected to increase from 14.8 trillion kilowatt hours in 2003 to 27.1 trillion kilowatt hours in 2025, according to the U.S. Department of Energy. However, the ability of conventional sources of electricity to meet the rapidly expanding global demand could be limited by supply constraints, rising prices, dependence on politically volatile countries for oil and environmental concerns. Worldwide, annual installations by the photovoltaic industry grew from 0.3 gigawatts of power, or GW, in 2001 to 1.5GW in 2005, representing a compound average annual growth rate, or CAGR, of 50%. Looking forward, according to *Photon International*, total solar cell production is expected to increase from 1,700 megawatts of power, or MWp, in 2005 to 10,400 MWp in 2010 for a CAGR of 44%. We believe this growth will drive significant demand for our products in the future.

*Expanding on Growth Opportunities in the Asia-Pacific Market.* With our extensive global knowledge and experience, we intend to further leverage our established sales channels in the Asia-Pacific market. Asia continues to be an important and expanding market for us, particularly because of the continued migration of semiconductor and solar cell manufacturing to countries in that region. According to *Solar Plaza*, total solar cell production in China is expected to grow from 600 MWp in 2005 to 2,200 MWp in 2010 for a CAGR of 30%. Our sales into Asia increased over 60% in fiscal 2006 compared to fiscal 2005 and we expect continued growth in this market.

*Accelerating New Product and Technology Development.* We are focused on developing new products across our business in response to customer needs in various markets.

*Small Batch Vertical Furnace*. At $1.5 billion annually, the vertical furnace market is much larger than the horizontal furnace market that we have served historically. Our entry product into the vertical furnace market is a two-tube small batch vertical furnace for wafer sizes of up to 200mm, with each tube having a small flat zone capable of processing 25-50 wafers per run. We anticipate that this system will have much of the same process capability as other vertical furnaces in the marketplace, but with a lower cost than most of our competitors. We are targeting small batch niche applications in the vertical furnace market first, since the competition in the large batch vertical furnace market is intense and our competitors are much larger and have substantially greater financial resources, processing knowledge and advanced technology. We believe our large installed customer base increases the market to which we can sell these small batch vertical furnaces and other new products.

*Precision Thickness Wafer Carrier.* Wafer carriers are work holders into which silicon wafers or other materials are inserted for the purpose of holding them securely in place during the lapping and polishing processes. Many customers thin their wafer carriers to precise tolerances to meet their various applications. In 2006, we developed a machine to produce precision thickness wafer carriers, which we expect will increase our share of the carrier market.

*Enhancing our Sales and Marketing Capabilities.* In order to increase sales and improve customer service globally, we intend to integrate our Bruce Technologies and Tempress sales and marketing teams and transition them from being product oriented to being regionally focused. We also intend to hire additional senior management to expand our existing solar sales and marketing efforts.

*Leveraging our Installed Base.* We intend to continue to leverage our relationships with our customers to maximize parts, system, service and retrofit revenue from the large installed base of Bruce Technologies and Tempress brand horizontal diffusion furnaces. We intend to accomplish this by meeting these customers needs for replacement systems and additional capacity, including equipment and services in connection with a customer s relocation to or expansion in Asia.

***External Growth***

We intend to selectively seek strategic growth opportunities through acquisitions, joint ventures, geographic expansion and the development of additional manufacturing capacity.

*Pursuing Strategic Acquisitions that Complement our Strong Platform.* Over the last twelve years, we have developed a successful acquisition program and have completed the acquisition and integration of three significant businesses.

In 1994, we acquired certain assets of Tempress and hired Tempress s engineers to develop our first models of the Tempress horizontal diffusion furnaces for production in The Netherlands.

In 1997, we acquired substantially all of the assets of P.R. Hoffman Machine Products Corporation. This acquisition enabled us to offer new consumable products, including lapping and polishing carriers, polishing templates, lapping and polishing machines and related consumable and spare parts to our existing customer base as well as to target new customers.

During the period between 1999 and 2003, we evaluated and negotiated numerous acquisition opportunities that we ultimately declined to consummate because of what we believed to be inflated market prices.

In 2004, we acquired certain semiconductor horizontal diffusion furnace operations, product lines and other assets from Kokusai, a wholly owned subsidiary of Hitachi, and its affiliate, Kokusai Electric Europe, GmbH. We continue to market the horizontal furnace product line under the name, Bruce Technologies. Bruce Technologies has a large installed base, including several large semiconductor manufacturers.

Each of the above acquisitions has contributed to our growth in net revenue and profitability. Based on a disciplined acquisition strategy, we continue to evaluate potential technology, product and business acquisitions or joint ventures that will increase our existing market share in the solar industry and expand the number of front-end semiconductor processes addressed by our products. In evaluating these opportunities, our objectives include: enhancing our earnings and cash flows, adding complementary product offerings, expanding our geographic footprint, improving production efficiency and growing our customer base.

**THE OFFERING**

| | |
|---|---|
| **Common Stock Offered by the Company** | shares |
| **Common Stock Offered by the Selling Shareholders** | shares |
| **Common Stock Outstanding after this Offering** | shares [(1)] |
| **Use of Proceeds** | We intend to use the net proceeds from this offering for working capital and other general corporate purposes, including for possible future product or business acquisitions in connection with the planned expansion of our solar and semiconductor businesses. We will not receive any proceeds from the sale of the shares of our common stock by the selling shareholders. See Use of Proceeds , beginning on page 17. |
| **Risk Factors** | You should carefully consider all of the information contained in, and incorporated by reference into, this prospectus, and in particular, you should evaluate the specific risks set forth under Risk Factors , beginning on page 8. |
| **NASDAQ Global Market Symbol** | ASYS |

[(1)] The number of shares outstanding does not include, as of December 8, 2006, 353,384 shares of common stock reserved for issuance upon exercise of options outstanding under our stock options plans. The number of shares outstanding assumes that the underwriters will exercise the over-allotment option granted to them by us.

**CORPORATE INFORMATION**

Amtech was incorporated in Arizona in October 1981, under the name Quartz Engineering & Materials, Inc. We changed to our present name in 1987. We conduct operations through three wholly-owned subsidiaries: Tempress Systems, Inc., a Texas corporation with all of its operations in The Netherlands ( Tempress Systems or Tempress ), acquired in 1994; P.R. Hoffman Machine Products, Inc., an Arizona corporation based in Carlisle, Pennsylvania ( P.R.Hoffman ), acquired in July 1997; and Bruce Technologies, Inc., a Massachusetts corporation based in Billerica, Massachusetts ( Bruce Technologies ), acquired in July 2004.

Our principal executive offices are located at 131 South Clark Drive, Tempe, Arizona, 85281, and our telephone number is (480) 967-5146. Our website is located at www.amtechsytems.com. The information contained in, or that can be accessed through, our website is not part of this prospectus.

Amtech, Tempress and Atmoscan are our federally registered trademarks. Other trademarks used in this prospectus are the property of their respective owners.

## SUMMARY CONSOLIDATED FINANCIAL DATA

We derived the consolidated operating data for the years ended September 30, 2004, 2005 and 2006 and the consolidated balance sheet data as of September 30, 2005 and 2006 from our audited consolidated financial statements incorporated by reference in this prospectus. We derived the consolidated balance sheet data as of September 30, 2004 from our audited consolidated financial statements not incorporated by reference in this prospectus.

The following selected financial data should be read in conjunction with the section of this prospectus entitled Management s Discussion and Analysis of Financial Condition and Results of Operations, and our consolidated financial statements (including the related notes thereto) incorporated by reference in this prospectus.

| | Years Ended September 30, | | |
|---|---|---|---|
| | 2004[1] | 2005 | 2006 |
| | (In thousands, except percentages and per share amounts) | | |
| **Operating Data:** | | | |
| Net revenues | $ 19,299 | 27,899 | $ 40,445 |
| Gross profit | $ 3,949 | 7,668 | 10,575 |
| Gross profit % | 20.5% | 27.5% | 26.1% |
| Operating income (loss) | $ (2,035) | (244) | 1,635 |
| Net income (loss) | $ (3,165) | (259) | 1,318 |
| Dividends on convertible preferred stock | $ | (76) | (81) |
| Net income (loss) attributable to common | $ (3,165) | (335) | 1,237 |
| **Earnings (loss) per share:** | | | |
| Basic earnings (loss) per share | $ (1.17) | (0.12) | 0.40 |
| Diluted earnings (loss) per share | $ (1.17) | (0.12) | 0.38 |

(1) On July 1, 2004, the Company acquired the Bruce Technologies horizontal furnace product line from Kokusai.

The following table contains a summary of our balance sheet at period end for the three fiscal years ended September 30, 2006, and as adjusted for the offering.

| | September 30, | | September 30, 2006 | |
|---|---|---|---|---|
| | 2004[1] | 2005 | Actual | As Adjusted |
| | (Dollars in thousands) | | | |
| **Balance Sheet Data:** | | | | |
| Cash and cash equivalents | $ 1,674 | $ 3,309 | $ 6,433 | |
| Working capital | $ 7,735 | $ 9,968 | $ 11,883 | |
| Current ratio | 2.7:1 | 3.7:1 | 2.6:1 | |
| Total assets | $ 16,660 | $ 17,701 | $ 23,563 | |
| Total current liabilities | $ 4,531 | $ 3,752 | $ 7,337 | |
| Long-term obligations | $ 474 | $ 741 | $ 617 | |
| Convertible preferred stock | $ | $ 1,935 | $ | |
| Total stockholders equity | $ 11,655 | $ 13,208 | $ 15,609 | |

(1) On July 1, 2004, the Company acquired the Bruce Technologies horizontal furnace product line from Kokusai.

## RISK FACTORS

*Before you invest in the securities offered pursuant to this prospectus, you should be aware that there are various related investment risks, including those described below. You should consider carefully these risk factors together with all of the other information included in this prospectus, and the exhibits to this prospectus.*

*If any of the following risks actually occur, our business, financial condition, results of operations or prospects could be materially and adversely affected. In such case, the trading price of our common stock could decline and you could lose part or all of your investment.*

**Risks Related to our Business and Industry.**

***If demand declines for horizontal diffusion furnaces and related equipment, or for solar industry products, our financial position and results of operations could be materially adversely affected.***

The revenue of our semiconductor equipment segment, which accounts for approximately 82% of our consolidated net revenue, is comprised primarily of sales of horizontal diffusion furnaces and our automation products. Our automation products are useable only with horizontal diffusion furnaces. There is a trend in the semiconductor industry, related to the trend to produce smaller chips on larger wafers, towards the use in semiconductor manufacturing facilities of newer technology, such as vertical diffusion furnaces. Vertical diffusion furnaces are more efficient than the horizontal diffusion furnaces in certain manufacturing processes for smaller chips on larger wafers. As early as 1994, we had expected that demand for our horizontal diffusion furnaces would decline as a result of this trend. We believe this trend has not yet adversely affected us to the extent originally expected. However, to the extent that the trend to use vertical diffusion furnaces over horizontal diffusion furnaces continues, our revenue may decline and our corresponding ability to generate income may be adversely affected.

Part of our growth strategy involves expanding our sales to the solar industry. The solar industry is subject to risks relating to industry shortages of polysilicon, the continuation of government incentives, the availability of specialized capital equipment, global energy prices and rapidly changing technologies offering alternative energy sources. If the demand for solar industry products declines, the demand by the solar industry for our products would also decline and our financial position and results of operations would be harmed.

***The ongoing volatility of the semiconductor equipment industry may negatively impact our business and results of operations and our corresponding ability to efficiently budget our expenses.***

The semiconductor equipment industry is highly cyclical. As such, demand for and the profitability of our products can change significantly from period to period as a result of numerous factors, including, but not limited to, changes in:

- global and regional economic conditions;
- changes in capacity utilization and production volume of manufacturers of semiconductors, silicon wafers, solar cells and MEMS;
- the shift of semiconductor production to Asia, where there often is increased price competition; and
- the profitability and capital resources of those manufacturers.

For these and other reasons, our results of operations for past periods may not necessarily be indicative of future operating results.

Since our business has historically been subject to cyclical industry conditions, we have experienced significant fluctuations in our quarterly new orders and net revenue, both within and across years. Demand for semiconductor and silicon wafer manufacturing equipment and related consumable products has also been volatile as a result of sudden changes in semiconductor supply and demand and other factors in both semiconductor devices and wafer fabrication processes. Our orders tend to be more volatile than our revenue, as any change in demand is reflected immediately in orders booked, which are net of cancellations, while revenue tends to be recognized over multiple quarters as a result of procurement and production lead times and the deferral of certain revenue under our revenue recognition policies. Customer delivery schedules on large system orders can also add to this volatility since we generally recognize revenue for new product sales on the date of customer acceptance or the date the contractual customer acceptance provisions lapse. As a result, the fiscal period in which we are able to recognize new products revenue is typically subject to the length of time that our customers require to evaluate the performance of our equipment after shipment and installation, which could cause our quarterly operating results to fluctuate.

The purchasing decisions of our customers are highly dependent on the economies of both their domestic markets and the worldwide semiconductor industry. The timing, length and severity of the up-and-down cycles in the semiconductor equipment industry are difficult to predict. The cyclical nature of our marketplace affects our ability to accurately budget our expense levels, which are based in part on our projections of future revenue.

When cyclical fluctuations result in lower than expected revenue levels, operating results may be adversely affected and cost reduction measures may be necessary in order for us to remain competitive and financially sound. During a down cycle, we must be able to make timely adjustments to our cost and expense structure to correspond to the prevailing market conditions. In addition, during periods of rapid growth, we must be able to increase manufacturing capacity and personnel to meet customer demand, which may require additional liquidity. We can provide no assurance that these objectives can be met in a timely manner in response to changes within the industry cycles. If we fail to respond to these cyclical changes, our business could be seriously harmed.

During the most recent down cycle, beginning in the first half of 2001, the semiconductor industry experienced excess production capacity that caused semiconductor manufacturers to decrease capital spending. We do not have long-term volume production contracts with our customers and we do not control the timing or volume of orders placed by our customers. Whether and to what extent our customers place orders for any specific products and the mix and quantities of products included in those orders are factors beyond our control. Insufficient orders would result in under-utilization of our manufacturing facilities and infrastructure and will negatively affect our financial position and results of operations.

***The semiconductor equipment industry is competitive and we are relatively small in size and have fewer resources in comparison with our competitors.***

Our industry includes large manufacturers with substantial resources to support customers worldwide. Our future performance depends, in part, upon our ability to continue to compete successfully worldwide. Some of our competitors are diversified companies having substantially greater financial resources and more extensive research, engineering, manufacturing, marketing and customer service and support capabilities than we can provide. We face competition from companies whose strategy is to provide a broad array of products, some of which compete with the products and services that we offer. These competitors may bundle their products in a manner that may discourage customers from purchasing our products. In addition, we face competition from smaller emerging semiconductor equipment companies whose strategy is to provide a portion of the products and services that we offer at often a lower price than ours, using innovative technology to sell products into specialized markets. Loss of competitive position could impair our prices, customer orders, revenue, gross margin and market share, any of which would negatively affect our financial position and results of operations. Our failure to compete successfully with these other companies would seriously harm our business. There is risk that larger, better-financed competitors will develop and market more advanced products than those that we currently offer, or that competitors with greater financial resources may decrease prices thereby putting us under financial pressure. The occurrence of any of these events could have a negative impact on our revenue.

***We are dependent on key personnel for our business and product development and sales, and any loss of our key personnel to competitors or other industries could dramatically impact our ability to continue operations.***

Historically, our product development has been accomplished through cooperative efforts with two key customers. Our relationship with one of these customers is substantially dependent on personal relations established by our President and Chief Executive Officer. Furthermore, our relationship with a major European customer that has been instrumental in the development of our small batch vertical furnace is substantially dependent upon our European General Manager. While there can be no assurance that such relationships will continue, such cooperation is expected to continue to be a significant element in our future development efforts thereby continuing our reliance on certain of our key personnel.

Amtech is the beneficiary of life insurance policies on the life of our President and Chief Executive Officer, Mr. J.S. Whang, in the amount of $2,000,000, but there is no assurance that such amount will be sufficient to cover the cost of finding and hiring a suitable replacement for Mr. Whang. It may not be feasible for any successor to maintain the same business relationships that Mr. Whang has established. If we were to lose the services of Mr. Whang for any reason, it could have a material adverse affect on our business.

We also depend on the management efforts of our officers and other key personnel and on our ability to attract and retain key personnel. We presently employ 3 engineers at our Tempe, Arizona location, including one with a Ph.D. We employ 10 engineers at our Billerica, Massachusetts plant. We employ 22 engineers, including two with Ph.D. s, at our operations in The Netherlands. These employees design and support the new small batch vertical furnace, horizontal diffusion furnace and conveyor furnace product lines manufactured in The Netherlands and the related automation products manufactured in Massachusetts. Two engineers are employed at our Carlisle, Pennsylvania operation. They design wafer lapping machines and carriers to meet customers processing requirements. During times of strong economic growth, competition is intense for highly skilled emplo