NETLIST INC
Form 10-K
March 03, 2011

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# UNITED STATES
# SECURITIES AND EXCHANGE COMMISSION

**Washington, D.C. 20549**

# FORM 10-K

**(Mark One)**

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

**For the fiscal year ended January 1, 2011**

**or**

o **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 001-33170**

# NETLIST, INC.

(Exact name of registrant as specified in its charter)

| **Delaware** | **95-4812784** |
|---|---|
| State or other jurisdiction of incorporation or organization | (I.R.S. employer Identification No.) |

**51 Discovery, Suite 150**
**Irvine, CA 92618**
(Address of principal executive offices) (Zip Code)

**(949) 435-0025**
(Registrant's telephone number, including area code)

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

| **Title of each class** | **Name of each exchange on which registered** |
|---|---|
| Common Stock, par value $0.001 per share | The NASDAQ Global Market |

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

None
(Title of class)

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes o No ý

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes o No ý

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 ý No o

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes o No o

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. ý

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act.

| Large accelerated filer o | Accelerated filer o | Non-accelerated filer o (Do not check if a smaller reporting company) | Smaller reporting company ý |
|---|---|---|---|

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act). Yes o No ý

The aggregate market value of the registrant's common stock held by non-affiliates, based on the closing price of the registrant's common stock as reported on The NASDAQ Global Market on July 3, 2010, the last business day of the registrant's most recently completed second fiscal quarter, was approximately $50.8 million. For purposes of this calculation, it has been assumed that all shares of the registrant's common stock held by directors, executive officers and shareholders beneficially owning five percent or more of the registrant's common stock are held by affiliates. The treatment of these persons as affiliates for purposes of this calculation is not conclusive as to whether such persons are, in fact, affiliates of the registrant.

The number of shares outstanding of the registrant's common stock, as of the latest practicable date:

Common Stock, par value $0.001 per share

25,284,303 shares outstanding at February 15, 2011

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the definitive Proxy Statement for the registrant's Annual Meeting of Stockholders for 2011 have been incorporated by reference into Part III of this Annual Report on Form 10-K.

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Unless the context otherwise requires, references to the "Company," "Netlist," "we," "us" or "our" refer to Netlist, Inc. and its subsidiaries.

The registered trademarks of Netlist, Inc. and its subsidiaries include: HyperCloud and NVvault . Other trademarks used in this Report are the property of their respective owners.

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*This Annual Report on Form 10-K includes "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995. These forward-looking statements relate to expectations concerning matters that are not historical facts, and are generally identified by words such as "believe", "expect", "anticipate", "estimate", "intend", "strategy", "may", "will likely" and similar words or phrases. A forward-looking statement is neither a prediction nor a guarantee of future events or circumstances, and our actual results could differ materially and adversely from those expressed in any forward-looking statement. These forward-looking statements are all based on currently available market, operating, financial and competitive information and assumptions and are subject to various risks and uncertainties that are difficult to predict. Important information regarding factors that could cause actual results to differ materially from such expectations is disclosed in this Report, including, without limitation, information under the caption "**Risk Factors**". These risks and uncertainties include, but are not limited to continuing development, qualification and volume production of NVvault and HyperCloud ; the rapidly-changing nature of technology; risks associated with intellectual property, including the costs and unpredictability of litigation over infringement of our property and the possibility of our patents being reexamined by the United States ("U.S.")Patent and Trademark Office ("USPTO"); volatility in the pricing of DRAM ICs and NAND; changes in and uncertainty of customer acceptance of, and demand for, our existing products and products under development, including uncertainty of and/or delays in product orders and product qualifications; delays in our and our customers' product releases and development; introductions of new products by competitors; changes in end-user demand for technology solutions; our ability to attract and retain skilled personnel; our reliance on suppliers of critical components and vendors in the supply chain; fluctuations in the market price of critical components; evolving industry standards; and the political and regulatory environment in the People's Republic of China ("PRC"). Except as required by law, we do not undertake any obligation to revise or update any forward-looking statements for any reason.*

## PART I

### Item 1. Business

#### Overview

We design, manufacture and sell high-performance, intelligent memory subsystems for datacenter server and high-performance computing and communications markets. Our memory subsystems consist of combinations of dynamic random access memory integrated circuits ("DRAM ICs" or "DRAM"), NAND flash memory ("NAND"), application-specific integrated circuits ("ASICs") and other components assembled on printed circuit boards ("PCBs"). We primarily market and sell our products to leading original equipment manufacturer ("OEM") customers. Our solutions are targeted at applications where memory plays a key role in meeting system performance requirements. We leverage a portfolio of proprietary technologies and design techniques, including efficient planar design, alternative packaging techniques and custom semiconductor logic, to deliver memory subsystems with high memory density, small form factor, high signal integrity, attractive thermal characteristics and low cost per bit.

We were incorporated in Delaware in June 2000 and commenced operations in September 2000.

#### Recent Developments

In November 2009, we introduced HyperCloud DDR3 memory technology. HyperCloud utilizes an ASIC chipset that incorporates Netlist patented rank multiplication technology that increases memory capacity and load reduction functionality that increases memory bandwidth. We expect that this technology will make possible improved levels of performance for memory intensive datacenter applications and workloads, including enterprise virtualization, cloud computing infrastructure, business intelligence real-time data analytics, and high performance computing. HyperCloud memory is being evaluated by several of our OEM customers for use in their server products. HyperCloud is

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interoperable with Joint Electronics Devices Engineering Council ("JEDEC") standard DDR3 memory modules. Our HyperCloud products are designed to allow for installation in servers without the need for a BIOS change. As such, their anticipated sales launch is not dependent on the design plans or product cycle of our OEM customers. However, we have experienced a longer qualification cycle than anticipated. As of January 1, 2011, we have not shipped any production quantities of HyperCloud .

In February 2010, we announced general availability of NVvault battery-free, a non-volatile cache memory subsystem targeting Redundant Array of Independent Disks, ("RAID") storage applications. NVvault battery-free provides server and storage OEMs a solution for enhanced datacenter fault recovery. Unlike our traditional battery-powered fault tolerant cache product which relied solely on batteries to power the cache, NVvault battery-free utilizes a combination of DRAM for high throughput performance and flash for extended data retention. The introduction of NVvault battery-free, as well as the launch of the current version of the battery-powered module in connection with Dell, Inc.'s ("Dell") introduction of the PERC 7 line of servers in December 2009, has resulted in RAID controller subsystem revenues of $20.2 million, or 54% of total revenues for 2010, including $4.8 million of NVvault . This compares favorably with $7.3 million in RAID controller subsystem revenues, or 40% of total revenues for 2009. Although revenues in 2010 have been primarily for shipments to Dell, in the fourth quarter of 2010 we qualified NVvault battery-free with other OEMs. We also intend to pursue end-user opportunities.

The remainder of our revenues arose primarily from OEM sales of custom memory modules, the majority of which were utilized in data center and industrial applications. When developing custom modules for an equipment product launch, we engage with our OEM customers from the earliest stages of new product definition, providing us unique insight into their full range of system architecture and performance requirements. This close collaboration has also allowed us to develop a significant level of systems expertise. We leverage a portfolio of proprietary technologies and design techniques, including efficient planar design, alternative packaging techniques and custom semiconductor logic, to deliver memory subsystems with high speed, capacity and signal integrity, small form factor, attractive thermal characteristics and low cost per bit. Revenues from custom modules have improved as a result of OEM product placements on new platforms and improved economic conditions compared with 2009. The continuation of this trend, which cannot be assured, is dependent on our ability to qualify our memory modules on new platforms as current platforms reach the end of their life cycles, and on the state of the global economy.

**Technology**

We have a portfolio of proprietary technologies and design techniques and have assembled an engineering team with expertise in semiconductors, printed circuit boards, memory subsystem and system design. Our technology competencies include:

*IC Design Expertise.* We have designed blocks of custom logic that can be implemented in stand-alone integrated circuits or integrated with other functional blocks in ASICs. We use these custom logic blocks in the HyperCloud chipset to incorporate rank multiplication and load reduction functionality onto standard registered dual in-line memory modules "RDIMMs". We also incorporate custom logic in our NVvault product line.

*Very Low Profile Designs.* We were the first company to create memory subsystems in a form factor of less than one inch in height. We believe our proprietary board design technology is particularly useful in the blade server market, where efficient use of motherboard space is critical. Our technology has allowed us to decrease the system board space required for memory, and improve thermal performance and operating speeds, by enabling our customers to use alternative methods of component layout.

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*Proprietary PCB Designs.* We utilize advanced, proprietary techniques to optimize electronic signal strength and integrity within a PCB. These techniques include the use of 8- or 10-layer boards, matching conductive trace lengths, a minimized number of conductive connectors, or vias, and precise load balancing to, among other things, help reduce noise and crosstalk between adjacent traces. In addition, our proprietary designs for the precise placement of intra-substrate components allow us to assemble memory subsystems with significantly smaller physical size, enabling OEMs to develop products with smaller footprints for their customers.

*Planar Design.* Our planar solutions are designed to provide high density solutions in a more cost-effective manner than traditional chip-stacking. We believe traditional chip-stacking can represent a significant portion of the total cost of a memory subsystem. Our planar solutions achieve the same densities as chip-stacked modules but do so by leveraging our PCB design expertise to place integrated circuits in two rows in the same plane rather than on top of each other. Our planar memory subsystem designs feature high memory capacity with improved thermal characteristics by dissipating heat uniformly throughout the PCB.

*Advanced Planar Designs.* We plan to extend our planar design capabilities to develop very high density memory subsystems. These advanced planar designs may allow us to build modular solutions at lower costs compared to other packaging technologies. Additionally, these advanced planar solutions may remove heat generated by memory components in a more effective manner and can be used to build memory subsystems in a number of densities and form factors.

*Thermal Management Designs.* We design our memory subsystems to ensure effective heat dissipation. We use thermal cameras to obtain thermal profiles of the memory subsystem during the design phase, allowing us to rearrange components to enhance thermal characteristics and, if necessary, replace components that do not meet specifications. We use thermal simulation and modeling software to create comprehensive heat transfer models of our memory subsystems, which enables our engineers to quickly develop accurate solutions for potential thermal issues. We also develop and use proprietary heat spreaders to enhance the thermal management characteristics of our memory subsystems.

**Customers**

We primarily market and sell our products to leading OEMs in the server, storage and communications markets. Consistent with the concentrated nature of the OEM customer base in our target markets, a small number of large customers have historically accounted for a significant portion of our net sales. Dell and F5 Networks, Inc. ("F5 Networks") represented approximately 59% and 19%, respectively, of our net sales in 2010. Dell and DRS Electronics, Inc. ("DRS Electronics") represented approximately 53% and 13%, respectively, of our net sales in 2009. Net sales to some of our OEM customers include memory modules that are qualified by us directly with the OEM customer and sold to electronic manufacturing services providers ("EMSs"), for incorporation into products manufactured exclusively for the OEM customer or, in some instances, to facilitate credit and logistics. These net sales to EMSs have historically fluctuated period to period as a portion of the total net sales to the OEM customers. Net sales to Hon Hai Precision Industry Co. Ltd., an EMS operating under the trade name of Foxconn that purchases memory modules from us for incorporation into products manufactured exclusively for Dell, represented approximately 96% and 76% of net sales to Dell for 2010 and 2009, respectively. Arrow Electronics Inc. ("Arrow") is an EMS for DRS Electronics. Substantially all of our products used by DRS Electronics are sold to Arrow for incorporation in subassembly products. Similarly, substantially all of the products sold to F5 Networks were sold through Flextronics International Ltd. For further information regarding our sales to our OEM customer base, please refer to Note 12 of Notes to Consolidated Financial Statements included in Part IV, Item 15 of this Report.

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We expect that our key customers will continue to account for a substantial portion of our net sales in 2011 and in the foreseeable future. The composition of major customers and their respective contributions to our net sales have varied and will likely continue to vary from period to period. Our sales are made primarily pursuant to standard purchase orders that may be rescheduled on relatively short notice. Customers are generally allowed limited rights of return for up to 30 days, except for sales of excess inventories, which contain no right-of-return privileges. Estimated returns are provided for at the time of sale based on historical experience or specific identification of an event necessitating a reserve. While these returns have historically been within our expectations and the provisions established, we cannot guarantee that we will continue to experience similar return rates in the future. Any significant increase in product failure rates and the resulting product returns could have a material adverse effect on our operating results for the period or periods in which such returns materialize.

We offer warranties on our memory subsystems generally ranging from one to three years, depending on the product and negotiated terms of purchase agreements with our customers. Such warranties require us to repair or replace defective product returned to us during such warranty period at no cost to the customer. Our estimates for warranty related costs are recorded at the time of sale based on historical and estimated future product return rates and expected repair or replacement costs. While such costs have historically been within our expectations and the provisions established, unexpected changes in failure rates could have a material adverse impact on us, requiring additional warranty reserves, and adversely affecting our gross profit and gross margins.

**Sales and Marketing**

We market and sell our products through a direct sales force and a network of independent sales representatives. Our sales activities focus primarily on developing strong relationships at the technical, marketing and executive management levels within market-leading OEMs. Additionally, our marketing strategy for our HyperCloud includes the creation of demand through end-user evaluation and demonstration activities in vertical computing markets. Our OEM customers design systems for a variety of applications that require a significant number of high performance memory subsystems, representing substantial opportunities for us. We have been successful in developing OEM relationships through our ability to provide high performance memory subsystems. Our direct sales group and field application engineers work closely with our OEM customers at an early stage of their design cycles to solve their design challenges and to design our products into their systems.

We believe in the timely communication and exchange of information with our customers. We utilize well-trained, highly technical program management teams to successfully drive new product development and quickly respond to our customers' needs and expectations. Our program management teams provide quick response times and act as a single point-of-contact for routine issues during the sales process. Additionally, they address the long-term business and technology goals of our customers. We employ a team approach to business development whereby our sales team and independent representatives identify, qualify and prioritize customer prospects through offices in a number of locations worldwide. For additional information regarding our net sales from external customers by geographic area, refer to Note 13 of Notes to Consolidated Financial Statements, included in Part IV, Item 15 of this Report.

**Manufacturing**

We manufacture substantially all of our products at our facilities in Suzhou in the PRC. Our advanced engineering and design capabilities, combined with our in-house manufacturing processes, allow us to assemble our memory subsystems reliably and in high volume. Our advanced, customized manufacturing facilities are capable of surface mount assembly, subsystem testing, system-level burn-in testing, programming, marking, labeling and packaging. At each stage of the production cycle, including product prototyping, qualification sample production and high-volume manufacturing and delivery, we

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focus on providing our customers with rapid response and short manufacturing turn-around times. Manufacturing cycle times for our products are typically one week or less, and in some cases as few as two days, from receipt of order.

We acquire components and materials such as ASICs, DRAM ICs and NAND directly from integrated circuit manufacturers and assemble them into finished subsystems. We believe that one of our key strengths is the efficient procurement and management of components for our subsystems, which benefits our customers in the form of lower costs and increased product availability. We have a limited number of suppliers, including Samsung Electronics, Hynix Semiconductor and Micron Semiconductor, each of which comprise more than 10% of our total purchases. We have developed strong supplier relationships with these and other key DRAM IC and NAND manufacturers, which we believe gives us direct and ready access to the critical components that we need for our production activities. We typically qualify our products with our customers using multiple manufacturers of DRAM ICs and NAND. The flexibility to choose from several DRAM IC and NAND providers allows us to minimize product cost and maximize product availability. Our HyperCloud RDIMM contains an ASIC chipset component. We intend to procure these ASICs from multiple integrated circuit vendors that are in varying stages of chipset development.

We schedule production based on purchase order commitments and anticipated orders. We release raw materials to the manufacturing floor by means of an on-line shop floor control system, which allows for internal quality analysis, direct access to inventory information and production floor material tracking. We have a flexible manufacturing workforce which allows us to manage unforecasted demand. In addition, in order to mitigate inventory risks, we have the capability to sell excess quantities of certain component inventories of DRAM ICs and NAND to distributors and other users of memory integrated circuits. However, the ASIC and DRAM components used in our HyperCloud product have limited alternative uses. As such, we may not be able to sell excess quantities of the components, should we fail to obtain qualification with major OEMs. Our sales of excess inventory generated less than 1% of our net sales in 2010 and approximately 4% of our net sales in 2009.

Our quality assurance engineers work with our suppliers to ensure that the raw materials we receive meet our high quality standards. These engineers also perform onsite supplier factory audits and use our internal test and inspection systems to verify that purchased components and materials meet our specifications. Our supplier quality program and incoming material quality control program are important aspects of our overall manufacturing process.

We perform ongoing reliability testing on our memory subsystems and share the results of that testing with our customers. We believe that this improves the system design process and allows for the elimination of potential problems at the earliest possible stage. In addition, we have implemented procedures which require that all of our memory subsystems undergo functional and system burn-in testing prior to delivery to the customer. We complement our test capabilities with advanced imaging technology to inspect the quality of our assemblies.

We are certified in ISO 9001:2000 Quality Management Systems, ISO 14001:2004 Environmental Management Standards, and OSHAS 18001:2007 Occupational Health and Safety Management Systems.

**Competition**

Our products are primarily targeted for the server, high performance computing and communications markets. These markets are intensely competitive, as numerous companies vie for business opportunities at a limited number of large OEMs. Our primary competitors are memory module providers such as STEC, SMART Modular Technologies, Inc., and Viking Interworks, a division of Sanmina-SCI Corporation. We face competition from DRAM suppliers, including Hynix, Samsung and Micron for many of our products, including HyperCloud . We also face potential direct or indirect

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competition from logic suppliers such as Inphi and IDT. As we enter new markets and pursue additional applications for our products, we may face competition from a larger number of competitors that produce solutions utilizing similar or competing technologies.

Certain of our competitors have substantially greater financial, technical, marketing, distribution and other resources, broader product lines, lower cost structures, greater brand recognition and longer standing relationships with customers and suppliers. Some of our competitors may also have a greater ability to influence industry standards than we do, as well as more extensive patent portfolios.

Some of our customers and suppliers may have proprietary products or technologies that are competitive with our products, or could develop internal solutions or enter into strategic relationships with, or acquire, existing high-density memory module providers. Any of these actions could reduce our customers' demand for our products. Some of our significant suppliers of memory integrated circuits may be able to manufacture competitive products at lower costs by leveraging internal efficiencies, or could choose to reduce our supply of memory integrated circuits, adversely affecting our ability to manufacture our memory subsystems on a timely basis, if at all.

Our ability to compete in our current target markets and in future markets will depend in large part on our ability to successfully develop, introduce and sell new and enhanced products on a timely and cost-effective basis, and to respond to changing market requirements. We believe that the principal competitive factors in the selection of high performance memory subsystems by potential customers are:

- understanding of OEM system and business requirements;
- timeliness of new value-add product introductions;
- design characteristics and performance;
- quality and reliability;
- track record of volume delivery;
- credibility with the customer;
- fulfillment capability and flexibility; and
- price.

We believe that we compete favorably with respect to these factors. However, our current and future competitors could develop competing products that could cause a decline in sales or loss of market acceptance of our products.

**Research and Development**

The market for high performance memory subsystems is constantly changing and therefore continuous development of new technology, processes and product innovation is mandatory to be successful as a leading supplier. We believe that the continued and timely development of new products and improvement of existing products are critical to maintaining our competitive position. Our team of engineers focuses on developing custom semiconductor logic devices and products with innovative thermal solutions, packaging solutions and improved electrical signal integrity that enhances reliability over the life of the system and achieves higher speeds and lowers power consumption. Also, our engineers incorporate various new techniques and methodologies for testing as well as new processes for manufacturing our products.

Our engineering staff closely engages with our OEM partners and their engineering teams at early stages in their system development. This collaboration allows our engineers to understand the customer's system architecture, power budget, operating environment such as air flow and operating temperature and any mechanical constraints. Our engineers use this information to provide guidance and solutions to implement optimum memory subsystems to our OEM partners. An important aspect of our research and development effort is to understand the challenges faced by our OEM partners and provide cost effective solutions that satisfy their requirements by utilizing our industry knowledge, proprietary technologies and technical expertise.

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We use advanced design tools in development of our products that allow us to model behavior of a signal trace on our memory modules as well as airflow and thermal profiles of all components in the system. These design tools enable real-time simulation for signal integrity and behavioral modeling of our designs using the Input/Output Buffer Information Specification ("IBIS") of our suppliers' components. These simulation tools help us reduce or eliminate electronic signal reflections, clock skews, signal jitter and noise which can reduce system performance and reliability. Also, our engineers use thermal simulation tools to identify potential thermal problems arising from inadequate airflow necessary to cool the components in the system. These efforts allow our engineers to develop optimum thermal solutions for our customer base.

We believe that to remain competitive we must continue to focus on developing advanced memory technologies. We have invested significant resources in the design of custom semiconductor logic devices. These logic devices are integrated into our next-generation memory subsystems in order to improve their performance. For example, our HyperCloud logic devices enable our DRAM-based subsystems to achieve higher speeds and address greater memory capacity at a lower price point than currently available products in the market. Logic devices in our NVvault battery-free product enable DRAM and flash memory to be efficiently combined for the purposes of backing up data storage. The development of these semiconductor devices are an important part of our overall effort to maintain a strong competitive position in our industry based on advanced memory technology.

Our customers typically do not separately compensate us for design and engineering work involved in developing application-specific products for them. Our total expenditures for research and development were approximately $14.8 million and $8.1 million for 2010 and 2009, respectively.

**Intellectual Property**

Our high performance memory subsystems are developed in part using our proprietary intellectual property, and we believe that the strength of our intellectual property rights will be important to the success of our business. We utilize patent and trade secret protection, confidentiality agreements with customers and partners, disclosure and invention assignment agreements with employees and consultants and other contractual provisions to protect our intellectual property and other proprietary information.

As of January 1, 2011, we had 17 patents issued and 24 patent applications pending. Assuming that they are properly maintained, our patents will expire at various dates between 2022 and 2027. Our issued patents and patent applications relate to the use of custom logic in high performance memory subsystems, PCB design, layout and packaging techniques. We intend to actively pursue the filing of additional patent applications related to our technology advancements. While we believe that our patent and other intellectual property rights are important to our success, our technical expertise and ability to introduce new products in a timely manner also will continue to be important factors in developing and maintaining our competitive position. Accordingly, we believe that our business is not materially dependent upon any one claim in any of our existing patents or pending patent applications.

Despite our precautions, a third party may reverse engineer, copy or otherwise obtain and use our products, services or technology without authorization, develop similar technology independently or design around any patents issued to us. There can be no assurance that our efforts taken to prevent misappropriation or infringement of our intellectual property by third parties have been or will be successful.

**Employees**

At January 1, 2011, we had approximately 232 employees (including 131 regular employees and 101 temporary employees). Approximately 74 of the regular employees were located in the U.S., and approximately 57 were located in other countries (mainly in the PRC). We had 137 employees in

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operations, 34 employees in research and development, 20 employees in sales and marketing, and 11 employees engaged in other administrative functions. We are not party to any collective bargaining agreements with any of our employees. We have never experienced a work stoppage, and we believe our employee relations are good.

**General Information**

We maintain a website at *www.netlist.com* (this uniform resource locator, or URL, is an inactive textual reference only and is not intended to incorporate our website into this Form 10-K). We file reports with the Securities and Exchange Commission ("SEC"), and make available, free of charge, on or through our website, our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, proxy and information statements and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), as soon as reasonably practicable after we electronically file such material with, or furnish it to, the SEC. Our website also contains copies of our corporate governance policy, code of business conduct and ethics, insider trading policy and whistleblower policy, as well as copies of the charters for our audit committee, compensation committee and nominating and corporate governance committee.

## Item 1A. Risk Factors

*You should consider each of the following factors as well as the other information in this Report in evaluating our business and our prospects. The risks described below are not the only ones we face. Additional risks we are not presently aware of or that we currently believe are immaterial may also impair our business operations. The trading price of our common stock could decline due to any of these risks, and you could lose all or part of your investment. In assessing these risks, you should also refer to the other information contained or incorporated by reference in this Report, including our consolidated financial statements and related notes.*

**Risks related to our business**

***We expect a number of factors to cause our operating results to fluctuate on a quarterly and annual basis, which may make it difficult to predict our future performance.***

Our operating results have varied significantly in the past and will continue to fluctuate from quarter-to-quarter or year-to-year in the future due to a variety of factors, many of which are beyond our control. Factors relating to our business that may contribute to these quarterly and annual fluctuations include the following factors, as well as other factors described elsewhere in this Report:

- our inability to develop new or enhanced products that achieve customer or market acceptance in a timely manner, including our HyperCloud memory module and our flash-based memory products;
- our failure to maintain the qualification of our products with our current customers or to qualify current and future products with our current or prospective customers in a timely manner or at all;
- the timing of actual or anticipated introductions of competing products or technologies by us or our competitors, customers or suppliers;
- the loss of, or a significant reduction in sales to, a key customer;
- the cyclical nature of the industry in which we operate;
- a reduction in the demand for our high performance memory subsystems or the systems into which they are incorporated;

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our customers' failure to pay us on a timely basis;

costs, inefficiencies and supply risks associated with outsourcing portions of the design and the manufacture of integrated circuits;

our ability to absorb manufacturing overhead if our revenues decline or vary from our projections;

delays in fulfilling orders for our products or a failure to fulfill orders;

our ability to procure an adequate supply of key components, particularly DRAM ICs and NAND;

dependence on large suppliers who are also competitors and whose manufacturing priorities may not support our production schedules;

changes in the prices of our products or in the cost of the materials that we use to build our products, including fluctuations in the market price of DRAM ICs and NAND;

our ability to effectively operate our manufacturing facility in the PRC;

manufacturing inefficiencies associated with the start-up of new manufacturing operations, new products and initiation of volume production;

our failure to produce products that meet the quality requirements of our customers;

disputes regarding intellectual property rights and the possibility of our patents being reexamined by the USPTO;

the costs and management attention diversion associated with litigation;

the loss of any of our key personnel;

changes in regulatory policies or accounting principles;

our ability to adequately manage or finance internal growth or growth through acquisitions; and

the effect of our investments and financing arrangements on our liquidity.

Due to the various factors mentioned above, and others, the results of any prior quarterly or annual periods should not be relied upon as an indication of our future operating performance. In one or more future periods, our results of operations may fall below the expectations of securities analysts and investors. In that event, the market price of our common stock would likely decline. In addition, the market price of our common stock may fluctuate or decline regardless of our operating performance.

***We have historically incurred losses and may continue to incur losses.***

Since the inception of our business in 2000, we have only experienced one fiscal year (2006) with profitable results. In order to regain profitability, or to achieve and sustain positive cash flows from operations in the future, we must further reduce operating expenses and/or increase our revenues. Although we have in the past engaged in a series of cost reduction actions, and believe that we could reduce our current level of expenses through elimination or reduction of strategic initiatives, such expense reductions alone may not make us profitable or allow us to sustain profitability if it is achieved. Our ability to achieve profitability will depend on increased revenue growth from, among other things, increased demand for our memory subsystems and related product offerings, as well as our ability to expand into new and emerging markets. We may not be successful in achieving the necessary revenue growth or the expected expense reductions. Moreover, we may be unable to sustain

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past or expected future expense reductions in subsequent periods. We may not achieve profitability or sustain such profitability, if achieved, on a quarterly or annual basis in the future.

Any failure to achieve profitability could result in increased capital requirements and pressure on our liquidity position. We believe our future capital requirements will depend on many factors, including our levels of net sales, the timing and extent of expenditures to support sales, marketing, research and development activities, the expansion of manufacturing capacity both domestically and internationally and the continued market acceptance of our products. Our capital requirements could result in our having to, or otherwise choosing to, seek additional funding through public or private equity offerings or debt financings. However, many companies are experiencing difficulty in achieving access to capital in these challenging times. Such funding may not be available on terms acceptable to us, or at all, either of which could result in our inability to meet certain of our financial obligations and other related commitments.

***We are subject to risks relating to product concentration and lack of market diversification.***

We have historically derived a substantial portion of our net sales from sales of our high performance memory subsystems for use in the server market. We expect these memory subsystems to continue to account for a significant portion of our net sales in the near term. Continued market acceptance of these products for use in servers is critical to our success.

In an attempt to set our products apart from those of our competitors, we have invested a significant portion of our research and development budget into the design of ASIC devices, such as the HyperCloud memory subsystem, introduced in November 2009. This new design and the products they are incorporated into are subject to increased risks as compared to our existing products. For example:

- we may be unable to achieve customer or market acceptance of the HyperCloud memory subsystem or other new products, or achieve such acceptance in a timely manner;
- the HyperCloud memory subsystem or other new products may contain currently undiscovered flaws, the correction of which would result in increased costs and time to market;
- we are dependent on a limited number of suppliers for both the DRAM ICs and the ASIC devices that are essential to the functionality of the HyperCloud memory subsystem, and could experience supply chain disruption as a result of business issues that are specific to our suppliers or the industry as a whole; and
- we will be required to demonstrate the quality and reliability of the HyperCloud memory subsystem or other new products to our customers, and will be required to qualify these new products with our customers, both of which will require a significant investment of time and resources prior to the receipt of any revenue from such customers.

Any failure or delay in placing or qualifying new products with our customers would likely result in reductions in our net sales and would adversely impact our results of operations.

Additionally, if the demand for servers deteriorates or if the demand for our products to be incorporated in servers declines, our operating results would be adversely affected, and we would be forced to diversify our product portfolio and our target markets. We may not be able to achieve this diversification, and our inability to do so may adversely affect our business.

***We may lose our competitive position if we are unable to timely and cost-effectively develop new or enhanced products that meet our customers' requirements and achieve market acceptance.***

Our industry is characterized by intense competition, rapid technological change, evolving industry standards and rapid product obsolescence. Evolving industry standards and technological change or

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new, competitive technologies could render our existing products obsolete. Accordingly, our ability to compete in the future will depend in large part on our ability to identify and develop new or enhanced products on a timely and cost-effective basis, and to respond to changing customer requirements. In order to develop and introduce new or enhanced products, we need to:

- identify and adjust to the changing requirements of our current and potential customers;
- identify and adapt to emerging technological trends and evolving industry standards in our markets;
- design and introduce cost-effective, innovative and performance-enhancing features that differentiate our products from those of our competitors;
- develop relationships with potential suppliers of components required for these new or enhanced products;
- qualify these products for use in our customers' products; and
- develop and maintain effective marketing strategies.

Our product development efforts are costly and inherently risky. It is difficult to foresee changes or developments in technology or anticipate the adoption of new standards. Moreover, once these things are identified, if at all, we will need to hire the appropriate technical personnel or retain third party designers, develop the product, identify and eliminate design flaws, and manufacture the product in production quantities either in-house or through third-party manufacturers. As a result, we may not be able to successfully develop new or enhanced products or we may experience delays in the development and introduction of new or enhanced products. Delays in product development and introduction could result in the loss of, or delays in generating, net sales and the loss of market share, as well as damage to our reputation. Even if we develop new or enhanced products, they may not meet our customers' requirements or gain market acceptance. Accordingly, we cannot assure you that our future product development efforts will result in the development of new or enhanced products or that such products will achieve market acceptance.

***Our customers require that our products undergo a lengthy and expensive qualification process without any assurance of net sales.***

Our prospective customers generally make a significant commitment of resources to test and evaluate our memory subsystems prior to purchasing our products and integrating them into their systems. This extensive qualification process involves rigorous reliability testing and evaluation of our products, which may continue for six months or longer and is often subject to delays. In addition to qualification of specific products, some of our customers may also require us to undergo a technology qualification if our product designs incorporate innovative technologies that the customer has not previously encountered. Such technology qualifications often take substantially longer than product qualifications and can take over a year to complete. Qualification by a prospective customer does not ensure any sales to that prospective customer. Even after successful qualification and sales of our products to a customer, changes in our products, our manufacturing facilities, our production processes or our component suppliers may require a new qualification process, which may result in additional delays.

In addition, because the qualification process is both product-specific and platform-specific, our existing customers sometimes require us to requalify our products, or to qualify our new products, for use in new platforms or applications. For example, as our OEM customers transition from prior generation DDR2 DRAM architectures to current generation DDR3 DRAM architectures, we must design and qualify new products for use by those customers. In the past, this process of design and qualification has taken up to six months to complete, during which time our net sales to those

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customers declined significantly. After our products are qualified, it can take several months before the customer begins production and we begin to generate net sales.

We must devote substantial resources, including design, engineering, sales, marketing and management efforts, to qualify our products with prospective customers in anticipation of sales. Significant delays in the qualification process, such as those experienced with our HyperCloud product, could result in an inability to keep up with rapid technology change or new, competitive technologies. If we delay or do not succeed in qualifying a product with an existing or prospective customer, we will not be able to sell that product to that customer, which may result in our holding excess and obsolete inventory and harm our operating results and business.

***Sales to a limited number of customers represent a significant portion of our net sales and the loss of, or a significant reduction in sales to, any one of these customers could materially harm our business.***

Sales to certain of our OEM customers have historically represented a substantial majority of our net sales. Approximately 59% and 19% of our net sales in 2010 were to two of our customers and approximately 53% and 13% of our net sales in 2009 were to two of our customers. We currently expect that sales to major OEM customers will continue to represent a significant percentage of our net sales for the foreseeable future. We do not have long-term agreements with our OEM customers, or with any other customer. Any one of these customers could decide at any time to discontinue, decrease or delay their purchase of our products. In addition, the prices that these customers pay for our products could change at any time. The loss of any of our OEM customers, or a significant reduction in sales to any of them, could significantly reduce our net sales and adversely affect our operating results.

Our ability to maintain or increase our net sales to our key customers depends on a variety of factors, many of which are beyond our control. These factors include our customers' continued sales of servers and other computing systems that incorporate our memory subsystems and our customers' continued incorporation of our products into their systems. Because of these and other factors, net sales to these customers may not continue and the amount of such net sales may not reach or exceed historical levels in any future period. Because these customers account for a substantial portion of our net sales, the failure of any one of these customers to pay on a timely basis would negatively impact our cash flow. In addition, while we may not be contractually obligated to accept returned products, we may determine that it is in our best interest to accept returns in order to maintain good relations with our customers.

***A limited number of relatively large potential customers dominate the markets for our products.***

Our target markets are characterized by a limited number of large companies. Consolidation in one or more of our target markets may further increase this industry concentration. As a result, we anticipate that sales of our products will continue to be concentrated among a limited number of large customers in the foreseeable future. We believe that our financial results will depend in significant part on our success in establishing and maintaining relationships with, and effecting substantial sales to, these potential customers. Even if we establish these relationships, our financial results will be largely dependent on these customers' sales and business results.

***If a standardized memory solution which addresses the demands of our customers is developed, our net sales and market share may decline.***

Many of our memory subsystems are specifically designed for our OEM customers' high performance systems. In a drive to reduce costs and assure supply of their memory module demand, our OEM customers may endeavor to design JEDEC standard DRAM modules into their new products. Although we also manufacture JEDEC modules, this trend could reduce the demand for our

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higher priced customized memory solutions which in turn would have a negative impact on our financial results. In addition, customers deploying custom memory solutions today may in the future choose to adopt a JEDEC standard, and the adoption of a JEDEC standard module instead of a previously custom module might allow new competitors to participate in a share of our customers' memory module business that previously belonged to us.

If our OEM customers were to adopt JEDEC standard modules, our future business may be limited to identifying the next generation of high performance memory demands of OEM customers and developing solutions that addresses such demands. Until fully implemented, this next generation of products may constitute a much smaller market, which may reduce our net sales and market share.

***We may not be able to maintain our competitive position because of the intense competition in our targeted markets.***

We participate in a highly competitive market, and we expect competition to intensify. Many of our competitors have longer operating histories, significantly greater resources and name recognition, a larger base of customers and longer-standing relationships with customers and suppliers than we have. As a result, some of these competitors are able to devote greater resources to the development, promotion and sale of products and are better positioned than we are to influence customer acceptance of their products over our products. These competitors also may be able to respond better to new or emerging technologies or standards and may be able to deliver products with comparable or superior performance at a lower price. For these reasons, we may not be able to compete successfully against these competitors. We also expect to face competition from new and emerging companies that may enter our existing or future markets. These potential competitors may have similar or alternative products which may be less costly or provide additional features.

In addition to the competition we face from DRAM and logic suppliers such as Hynix, Samsung, Micron, Inphi and IDT, some of our OEM customers have their own internal design groups that may develop solutions that compete with ours. These design groups have some advantages over us, including direct access to their respective companies' technical information and technology roadmaps. Our OEM customers also have substantially greater resources, financial and otherwise, than we do, and may have lower cost structures than ours. As a result, they may be able to design and manufacture competitive products more efficiently or inexpensively. If any of these OEM customers are successful in competing against us, our sales could decline, our margins could be negatively impacted and we could lose market share, any or all of which could harm our business and results of operations. Further, some of our significant suppliers are also competitors, many of whom have the ability to manufacture competitive products at lower costs as a result of their higher levels of integration.

We expect our competitors to continue to improve the performance of their current products, reduce their prices and introduce new or enhanced technologies that may offer greater performance and improved pricing. If we are unable to match or exceed the improvements made by our competitors, our market position would deteriorate and our net sales would decline. In addition, our competitors may develop future generations and enhancements of competitive products that may render our technologies obsolete or uncompetitive.

***Our operating results may be adversely impacted by worldwide economic and political uncertainties and specific conditions in the markets we address, including the cyclical nature of and volatility in the memory market and semiconductor industry.***

Adverse changes in domestic and global economic and political conditions have made it extremely difficult for our customers, our vendors and us to accurately forecast and plan future business activities, and they have caused and could continue to cause U.S. and foreign businesses to slow spending on our products and services, which would further delay and lengthen sales cycles. In addition, sales of our

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products are dependent upon demand in the computing, networking, communications, printer, storage and industrial markets. These markets have been cyclical and are characterized by wide fluctuations in product supply and demand. These markets have experienced significant downturns, often connected with, or in anticipation of, maturing product cycles, reductions in technology spending and declines in general economic conditions. These downturns have been characterized by diminished product demand, production overcapacity, high inventory levels and the erosion of average selling prices.

We may experience substantial period-to-period fluctuations in future operating results due to factors affecting the computing, networking, communications, printers, storage and industrial markets. A decline or significant shortfall in demand in any one of these markets could have a material adverse effect on the demand for our products. As a result, our sales will likely decline during these periods. In addition, because many of our costs and operating expenses are relatively fixed, if we are unable to control our expenses adequately in response to reduced sales, our gross margins, operating income and cash flow would be negatively impacted.

During challenging economic times our customers may face issues gaining timely access to sufficient credit, which could result in an impairment of their ability to make timely payments to us. If that were to occur, we may be required to increase our allowance for doubtful accounts and our days sales outstanding would be negatively impacted. Furthermore, our vendors may face similar issues gaining access to credit, which may limit their ability to supply components or provide trade credit to us. We cannot predict the timing, strength or duration of any economic slowdown or subsequent economic recovery, worldwide, or in the memory market and related semiconductor industry. If the economy or markets in which we operate do not continue to improve or if conditions worsen, our business, financial condition and results of operations will likely be materially and adversely affected. Additionally, the combination of our lengthy sales cycle coupled with challenging macroeconomic conditions could compound the negative impact on the results of our operations.

***Our lack of a significant backlog of unfilled orders, and the difficulty inherent in forecasting customer demand, makes it difficult to forecast our short-term production requirements to meet that demand, and any failure to optimally calibrate our production capacity and inventory levels to meet customer demand could adversely affect our revenues, gross margins and earnings.***

We make significant decisions regarding the levels of business that we will seek and accept, production schedules, component procurement commitments, personnel needs and other resource requirements, based on our estimates of customer requirements. We do not have long-term purchase agreements with our customers. Instead, our customers often place purchase orders no more than two weeks in advance of their desired delivery date, and these purchase orders generally have no cancellation or rescheduling penalty provisions. The short-term nature of commitments by many of our customers, the fact that our customers may cancel or defer purchase orders for any reason, and the possibility of unexpected changes in demand for our customers' products each reduce our ability to accurately estimate future customer requirements for our products. This fact, combined with the quick turn-around times that apply to each order, makes it difficult to forecast our production needs and allocate production capacity efficiently. We attempt to forecast the demand for the DRAM ICs, NAND, and other components needed to manufacture our products. Lead times for components vary significantly and depend on various factors, such as the specific supplier and the demand and supply for a component at a given time.

Our production expense and component purchase levels are based in part on our forecasts of our customers' future product requirements and to a large extent are fixed in the short term. As a result, we likely will be unable to adjust spending on a timely basis to compensate for any unexpected shortfall in those orders. If we overestimate customer demand, we may have excess raw material inventory of DRAM ICs and NAND. If there is a subsequent decline in the prices of DRAM ICs or NAND, the value of our inventory will fall. As a result, we may need to write-down the value of our DRAM IC or

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NAND inventory, which may result in a significant decrease in our gross margin and financial condition. Also, to the extent that we manufacture products in anticipation of future demand that does not materialize, or in the event a customer cancels or reduces outstanding orders, we could experience an unanticipated increase in our finished goods inventory. In the past, we have had to write-down inventory due to obsolescence, excess quantities and declines in market value below our costs. Any significant shortfall of customer orders in relation to our expectations could hurt our operating results, cash flows and financial condition.

Also, any rapid increases in production required by our customers could strain our resources and reduce our margins. If we underestimate customer demand, we may not have sufficient inventory of DRAM ICs and NAND on hand to manufacture enough product to meet that demand. We also may not have sufficient manufacturing capacity at any given time to meet our customers' demands for rapid increases in production. These shortages of inventory and capacity will lead to delays in the delivery of our products, and we could forego sales opportunities, lose market share and damage our customer relationships.

***Declines in our average sales prices, driven by volatile prices for DRAM ICs and NAND, among other factors, may result in declines in our revenues and gross profit.***

Our industry is competitive and historically has been characterized by declines in average sales price, based in part on the market price of DRAM ICs and NAND, which have historically constituted a substantial portion of the total cost of our memory subsystems. Our average sales prices may decline due to several factors, including overcapacity in the worldwide supply of DRAM and NAND memory components as a result of worldwide economic conditions, increased manufacturing efficiencies, implementation of new manufacturing processes and expansion of manufacturing capacity by component suppliers.

Once our prices with a customer are negotiated, we are generally unable to revise pricing with that customer until our next regularly scheduled price adjustment. Consequently, we are exposed to the risks associated with the volatility of the price of DRAM ICs and NAND during that period. If the market prices for DRAM ICs and NAND increase, we generally cannot pass the price increases on to our customers for products purchased under an existing purchase order. As a result, our cost of sales could increase and our gross margins could decrease. Alternatively, if there are declines in the price of DRAM ICs and NAND, we may need to reduce our selling prices for subsequent purchase orders, which may result in a decline in our expected net sales.

In addition, since a large percentage of our sales are to a small number of customers that are primarily distributors and large OEMs, these customers have exerted, and we expect they will continue to exert, pressure on us to make price concessions. If not offset by increases in volume of sales or the sales of newly-developed products with higher margins, decreases in average sales prices would likely have a material adverse effect on our business and operating results.

***We use a small number of custom ASIC, DRAM IC and NAND suppliers and are subject to risks of disruption in the supply of custom ASIC, DRAM ICs and NAND.***

Our ability to fulfill customer orders or produce qualification samples is dependent on a sufficient supply of DRAM ICs and NAND, which are essential components of our memory subsystems. We are also dependent on a sufficient supply of custom ASIC devices to produce our HyperCloud memory modules. There are a relatively small number of suppliers of DRAM ICs and NAND, and we purchase from only a subset of these suppliers. We have no long-term DRAM or NAND supply contracts. Additionally, we could face obstacles in moving production of our ASIC components away from our current design and production partners. Our dependence on a small number of suppliers and the lack of any guaranteed sources of ASIC components, DRAM and NAND supply expose us to several risks, including the inability to obtain an adequate supply of these important components, price increases, delivery delays and poor quality.

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Historical declines in customer demand and our revenues caused us to reduce our purchases of DRAM ICs and NAND. Such fluctuations could occur in the future. Should we not maintain sufficient purchase levels with some suppliers, our ability to obtain supplies of raw materials may be impaired due to the practice of some suppliers to allocate their products to customers with the highest regular demand.

From time to time, shortages in DRAM ICs and NAND have required some suppliers to limit the supply of their DRAM ICs and NAND. As a result, we may be unable to obtain the DRAM ICs or NAND necessary to fill customers' orders for our products in a timely manner. If we are unable to obtain a sufficient supply of DRAM ICs or NAND to meet our customers' requirements, these customers may reduce future orders for our products or not purchase our products at all, which would cause our net sales to decline and harm our operating results. In addition, our reputation could be harmed, we may not be able to replace any lost business with new customers, and we may lose market share to our competitors.

Our customers qualify the ASIC components, DRAM ICs and NAND of our suppliers for use in their systems. If one of our suppliers should experience quality control problems, it may be disqualified by one or more of our customers. This would disrupt our supplies of ASIC components, DRAM ICs and NAND and reduce the number of suppliers available to us, and may require that we qualify a new supplier. If our suppliers are unable to produce qualification samples on a timely basis or at all, we could experience delays in the qualification process, which could have a significant impact on our ability to sell that product.

***If the supply of other component materials used to manufacture our products is interrupted, or if our inventory becomes obsolete, our results of operations and financial condition could be adversely affected.***

We use consumables and other components, including PCBs, to manufacture our memory subsystems. We sometimes procure PCBs and other components from single or limited sources to take advantage of volume pricing discounts. Material shortages