

NOVA MEASURING INSTRUMENTS LTD
Form F-3
May 11, 2007

As filed with the Securities and Exchange Commission on May 11, 2007

Registration No. 333-_____

UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

WASHINGTON, DC 20549

Form F-3

REGISTRATION STATEMENT UNDER THE SECURITIES ACT OF 1933

NOVA MEASURING INSTRUMENTS LTD.

(Translation of Registrant's name into English)

Israel

N/A

(State or other jurisdiction of incorporation or organization)

(I.R.S. Employer Identification Number)

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(Address and telephone number of Registrant's principal executive offices)

**Nova Measuring Instruments Inc.
4701 Patrick Henry Drive, Building 1701, Santa Clara, CA 95054**
(Name, address and telephone number of agent for service)

Copies to:

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One Azrieli Center
Tel Aviv 67021, Israel**

Approximate date of commencement of proposed sale to the public: as soon as practicable after this Registration Statement becomes effective. If the only securities being registered on this Form are being offered pursuant to dividend or interest reinvestment plans, please check the following box.

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.

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.

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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.

If this Form is a registration statement pursuant to General Instruction I.C. or a post-effective amendment thereto that shall become effective upon filing with the Commission pursuant to Rule 462(e) under the Securities Act, check the following box.

If this Form is a post-effective amendment to a registration statement filed pursuant to General Instruction I.C. filed to register additional securities or additional classes of securities pursuant to Rule 413(b) under the Securities Act, check the following box.

CALCULATION OF REGISTRATION FEE

Title of Each Class of Securities to be Registered	Amount to be Registered	Proposed Maximum Offering Price Per Share(2)	Proposed Maximum Aggregate Offering Price (2)	Amount of Registration Fee
Ordinary Shares, NIS 0.01 par value	4,719,597(1)	\$ 2.80	\$ 13,214,872	\$ 406

(1) Includes 1,453,485 ordinary shares that may be acquired upon exercise of warrants. In addition to the shares set forth in the table, the amount to be registered includes an unidentified number of shares that may become issuable as a result of stock splits, stock dividends and similar transactions in accordance with Rule 416(a) under the Securities Act of 1933, as amended.

(2) Estimated solely for the purpose of calculating the amount of the registration fee pursuant to Rule 457(c) under the Securities Act of 1933, as amended, and based upon the average of the high and low prices of the registrant's ordinary shares as reported on the Nasdaq Global Market on May 7, 2007.

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, as amended, or until this Registration Statement shall become effective on such date as the Securities and Exchange Commission, acting pursuant to said Section 8(a), may determine.

The information in this prospectus is not complete and may be changed. The selling shareholders may not sell their shares until the registration statement filed with the Securities and Exchange Commission becomes effective. This prospectus is not an offer to sell shares and it is not soliciting an offer to buy shares in any state where the offer or sale is not permitted.

**PERLIMINARY PROSPECTUS
(SUBJECT TO COMPLETION, DATED MAY 11, 2007)**

4,719,597 Shares

NOVA MEASURING INSTRUMENTS LTD.

Ordinary Shares, par value NIS 0.01 per share

This prospectus relates solely to the resale of an aggregate of 1,937,983 ordinary shares that we sold in a private placement, the closing of which occurred on March 13, 2007, up to an aggregate of 1,453,485 additional ordinary shares issuable upon exercise of warrants that we issued in connection with this private placement and an aggregate of 1,328,129 ordinary shares that we issued in connection with the purchase of HyperNex, Inc. We have agreed to bear all of the expenses incurred in connection with the registration of these shares. The selling shareholders will pay any brokerage commissions and/or similar charges incurred in connection with the sale of the shares.

The selling shareholders listed beginning on page 14 of this prospectus (including their pledges, donees, transferees, assignors or other successors-in-interest) may offer the shares from time to time through public or private transactions at prevailing market prices or at privately negotiated prices.

4,719,597 Shares NOVA MEASURING INSTRUMENTS LTD. Ordinary Shares, par value NIS 0.01 per share

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We will not receive any of the proceeds from the sale of the ordinary shares being sold by the selling shareholders. Upon the exercise of the warrants by payment of cash, however, we will receive the exercise price of the warrants, which is initially \$3.05 per share.

Our ordinary shares are quoted on the Nasdaq Global Market under the symbol NVMI and listed, in addition, on the Tel Aviv Stock Exchange. On May 9, 2007, the closing sale price for our ordinary shares on the Nasdaq Global Market was \$2.95.

This investment involves a high degree of risk. You should purchase shares only if you can afford a complete loss of your investment. See Risk Factors beginning on page 3.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved the ordinary shares, or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

The date of this prospectus is _____, 2007

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FORWARD-LOOKING STATEMENTS

Certain information contained herein, which does not relate to historical financial information, may be deemed to constitute forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. The words or phrases "will likely result," "are expected to," "will continue," "is anticipated," "estimate," "project," "believe," "plan," or similar expressions identify forward looking statements, including statements relating to our anticipated sales, revenues and expenses in 2007, our expectations with respect to our ability to gain market share, our ability to add additional process equipment manufacturers as partners and to develop and introduce new products, possible outcomes of the litigation in which we are involved, possible outcomes of our efforts to complete and integrate future acquisition, anticipated growth of the semiconductor industry and metrology markets and expected changes in the semiconductor industry, are subject to certain risks and uncertainties that could cause actual results to differ materially from historical results and those presently anticipated or projected. We wish to caution readers not to place undue reliance on any such forward-looking statements, which speak only as of the date made. We cannot guarantee future results, levels of activity, performance or achievements. We also undertake no obligation to release publicly any revisions to these forward looking statements to reflect events or circumstances after the date hereof or to reflect the occurrence of unanticipated events. Among the factors that could cause our actual results in the future to differ materially from any opinions or statements expressed with respect to future periods are competitive industry conditions and the ability to forecast the needs of the semiconductor industry with respect to the very cyclical nature of the industry and the very fast pace of technology evolutions. Various other factors that could cause our actual results to differ materially are set forth in "Risk Factors" starting on page 3 and elsewhere herein.

PROSPECTUS SUMMARY

This prospectus summary highlights selected information contained elsewhere, or incorporated by reference, in this prospectus. You should read the following summary together with the more detailed information regarding our company and the shares being sold in this offering, which information appears elsewhere in this prospectus and in other documents filed with the Securities and Exchange Commission that we have incorporated by reference into this prospectus. All financial information provided in this prospectus is in U.S. dollars. Unless the context otherwise requires, references to we , us , our or the Company refer to Nova Measuring Instruments Ltd. and its subsidiaries.

The Company

We are a worldwide leading designer, developer and producer of integrated process control metrology systems and design, manufacture and sell leading edge stand-alone metrology used in the manufacturing process of semiconductors. Metrology systems measure various thin film properties and critical circuit dimensions during various steps in the semiconductor manufacturing process, allowing semiconductor manufacturers to increase quality, productivity and yields, lower their manufacturing costs and increase their profitability. We supply our metrology systems to major semiconductor manufacturers worldwide, either directly or through process equipment manufacturers. Of the 25 semiconductor manufacturers that had the highest capital equipment expenditures in 2006, 21 use our systems. The majority of our integrated metrology systems are sold to process equipment manufacturers. These process equipment manufacturers integrate our metrology systems into their process equipment which is then sold to the semiconductor manufacturers. Our systems were first installed in 1995 and, since that time, we have sold more than 1,500 metrology systems.

The semiconductor manufacturing process starts with a silicon wafer that has been highly polished on one side to a mirror finish, upon which circuits are constructed. To construct the circuits, a series of layers of thin films that act as conductors, semiconductors or insulators are applied to the polished side of the wafer. During the manufacturing process, these film layers are subjected to processes which remove portions of the film layers, create circuit patterns and perform other functions. The semiconductor manufacturing process requires exacting steps and strict control of equipment performance and process sequences. Tight control can be achieved through monitoring silicon wafers and measuring relevant parameters after each process step with metrology tools such as those we produce.

Prior to the introduction of our integrated metrology systems, process control was achieved through stand-alone measurement equipment. Stand-alone measurement equipment required semiconductor manufacturers to interrupt the manufacturing process sequence, remove sample silicon wafers from the process equipment and place the silicon wafers on the stand-alone measuring or inspection tool. In contrast, our integrated metrology approach is based upon patented measuring methods that enable us to produce optical measuring systems that are small enough to be integrated directly inside many types of semiconductor process equipment. We believe that in several instances during the manufacturing process, our integrated approach offers considerable advantages over the conventional stand-alone approach to metrology control, enabling manufacturers using our integrated equipment to reduce costs and to improve production efficiency, yield and quality.

We have always emphasized our integrated metrology solutions as this continues to be an area where we have a leading position. In addition, in the past few years we developed and started manufacturing stand-alone metrology systems as well. We plan to leverage our technology, methods, metrology expertise and market position in the integrated metrology field to expand our offerings of stand-alone metrology systems. Today, both stand alone and integrated metrology solutions have reached a level of maturity allowing semiconductor manufactures to choose how to use either technology and make decisions based on merit specific to the process step in question, always balancing between the amount of data attained and the use made of the data for capabilities such as automated process control. Our long-term strategy is focused on advanced metrology and process control solutions where our integrated process control products and stand alone products are compatible or complementary and used in a customized way to meet specific customer needs.

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Recent Developments

On August 8, 2006, we completed the acquisition of substantially all the assets of HyperNex, Inc., or HyperNex, and the assumption of certain specified liabilities pursuant to an Amended and Restated Asset Purchase Agreement dated August 8, 2006. Pursuant to the terms of the Amended and Restated Asset Purchase Agreement, we issued 1,208,000 ordinary shares to HyperNex and 392,000 ordinary shares to HyperNex employees and managers. Shares issued by us to HyperNex were distributed to HyperNex stockholders by HyperNex. Unless the context otherwise requires, we refer in this prospectus to such stockholders and employees of HyperNex as the HyperNex stockholders .

On March 13, 2007, we completed a private placement of our ordinary shares pursuant to a Share Purchase Agreement entered into on February 28, 2007. Pursuant to the terms of this Share Purchase Agreement between us and Clal Electronics Industries Ltd. and affiliates of Rima Management, LLC, these accredited investors purchased from us an aggregate of 1,937,983 ordinary shares at a price of \$2.58 per share and warrants to purchase 1,453,485 ordinary shares with an exercise price of \$3.05 per share. As of April 20, 2007, Clal Electronics Industries

Ltd. beneficially owned 24.32% of our outstanding share capital and affiliates of Rima Management, LLC beneficially owned in the aggregate 8.32% of our outstanding share capital. The warrants can be exercised at any time and from time to time from their issuance date and through the 4th anniversary of the issuance date. The exercise price and the number of shares issuable upon exercise of the warrants are subject to customary adjustments in the event of stock dividend, splits or fundamental transactions. The warrants have a cashless exercise provision that allows the holder to receive a reduced number of ordinary shares without paying the exercise price in cash. Unless the context otherwise requires, we refer in this prospectus to the private placement investors and the HyperNex stockholders, collectively as the selling shareholders .

We issued these ordinary shares and warrants to purchase our ordinary shares in reliance on an exemption from registration pursuant to Regulation D promulgated under the Securities Act of 1933, as amended, or the Securities Act. In connection with the private placement, we granted the investors registration rights, pursuant to which we are obligated to file a registration statement on Form F-3 for the resale of the shares sold in the transaction and the shares issuable upon exercise of the warrants. In connection with the purchase of HyperNex, we granted the HyperNex stockholders registration rights, pursuant to which such HyperNex stockholders were entitled to ask us to include their shares in this registration statement. We have received from HyperNex stockholders requests to register an aggregate of 1,328,129 ordinary shares. These shares are included in the registration statement on Form F-3 to which this prospectus relates. Please see Selling Shareholders, beginning on page 14, for more information.

Unless otherwise indicated, the share information in this prospectus is based on 19,107,567 ordinary shares outstanding as of April 20, 2007 and assumes no exercise of the warrants to purchase additional ordinary shares.

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RISK FACTORS

Risks Related to Our Business and Our Industry

Because substantially most of our current sales are dependent on a single product line, factors that adversely affect the pricing and demand for this product line could substantially reduce our sales.

Although we have expanded our product offering, we are still currently dependent on a single integrated process control product line targeting the chemical mechanical polishing market. We expect revenues from this product line to continue to account for a substantial portion of our revenues for at least the next year. As a result, factors adversely affecting the pricing of or demand for integrated process controls for the chemical mechanical polishing equipment field, such as competition and technological change, could reduce our sales.

The markets we target are highly cyclical and it is difficult to predict the length and strength of any downturn or expansion period.

The semiconductor capital equipment market and industries, which are highly cyclical, experienced in 2006 significant increases in sales, after a decline of more than 18% in sales in 2005. Although we rely on market research companies, we cannot predict the length and strength of the downturns or expansions. Furthermore, we have only a limited ability to reduce expenses during any industry downturn because of the need for significant ongoing expenditures related to engineering, research and development and worldwide customer service and support operations. As a result, during future downturns, we may incur additional losses greater than those we incurred in the past.

Our inability to reduce spending during a protracted slowdown in the semiconductor industry could reduce our prospects of achieving profitability.

Historically, we have derived all of our revenues, and we expect to continue to derive practically all of our revenues, from sales of our products and related services to the semiconductor industry. Our business depends in large part upon capital expenditures by semiconductor manufacturers, which in turn depend upon the current and anticipated demand for semiconductors. The semiconductor industry has experienced severe and protracted cyclical downturns and upturns. During cyclical downturns, we have in the past experienced, and will likely in the future experience, material reductions in the demand for the type of capital equipment and process technology that we offer and our sales and revenues might decline again. In addition, our ability to reduce expenses in response to any downturn or slowdown in the rate of capital investment by manufacturers in these industries may be limited because of:

our continuing need to invest in research and development;

our capital equipment requirements; and

our extensive ongoing customer service and support requirements worldwide.

As a result, we may have difficulty achieving profitability.

If we do not respond effectively and on a timely basis to rapid technological change, our ability to attract and retain customers could be diminished, which would hurt our sales and ability to remain competitive.

The semiconductor manufacturing industry is characterized by rapid technological change, new product introductions and enhancements and evolving industry standards. Our ability to remain competitive and generate sales revenue will depend in part upon our ability to develop new and enhanced systems at competitive prices in a timely and cost-effective manner and to accurately predict technology transitions. Because new product development commitments must be made well in advance of sales, new product decisions must anticipate the future demand for products. If we fail to correctly anticipate future demand for products, our sales and competitive position will suffer. In addition, the development of new measurement technologies, new product introductions or enhancements by our competitors could cause a decline in our sales or loss of market acceptance of our existing products.

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We may not be able to develop or market new products, which could slow or prevent our growth.

Our business plan requires the introduction of several new product lines. Our plans to introduce process control products for photolithography, etch, metal deposition and other processes will require development of new capabilities. Some of these projects are in the early stages of development, and we cannot be certain that we will be able to develop or bring to market these new product lines or, if we do, that these products will be well received or profitable. If we are unable to successfully introduce new product lines, our future growth could be adversely affected.

If any of our systems fail to meet or exceed our internal quality specifications, we cannot ship them until such time as they have met such specifications. If we experience significant delays or are unable to ship our products to our customers as a result of our internal processes, or for any other reason, our business and reputation may suffer.

Our products are complex and require technical expertise to design and manufacture. Various problems occasionally arise during the manufacturing process that may cause delays and/or impair product quality. We actively monitor our manufacturing processes to ensure that our products meet our internal quality specifications. Any significant delays stemming from the failure of our products to meet or exceed our internal quality specifications, or for any other reasons, would delay our shipments. Shipment delays could harm our business, revenues and reputation in the industry.

New product lines that we may introduce in the future may contain defects, which will require us to allocate time and financial resources to correct.

Our new product lines may contain defects when first introduced. If there are defects, we will need to divert the attention of our personnel from our product development efforts to address the detection and correction of the defects. In the past, no liability claims have been filed against us for damages related to product defects, and we have not experienced any material delays as a result of product defects. However, we cannot provide assurances that we will not incur these costs or liabilities or experience these lags or delays in the future. Moreover, the occurrence of such defects, whether caused by our products or the products of another vendor, may result in significant customer relations problems and injury to our reputation and may impair the market acceptance of our products.

We have historically generated losses and may incur future losses.

Since our inception in 1993, we have incurred several years of losses and only a few profitable years. We may incur a net loss in 2007 or in future years. As of March 30, 2007, we had an accumulated deficit of approximately \$6.5 million. We plan to increase our aggregate operating expenses in 2007 relative to 2006. Accordingly, to achieve profitability in 2007, we will need to significantly increase our sales. In the future, our sales may not grow and we may not achieve profitability.

Our dependence on a single manufacturing facility magnifies the risk of an interruption in our production capabilities.

We have only one manufacturing facility, which is located in Ness-Ziona, Israel. Any event affecting this site, including natural disaster, labor stoppages or armed conflict, may disrupt or indefinitely discontinue our manufacturing capabilities and could significantly impair our

ability to fulfill orders and generate revenues, thus negatively impacting our business.

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We experience quarterly fluctuations in our operating results, which may adversely impact our stock price.

Our quarterly operating results have fluctuated significantly in the past. This trend may continue. A principal reason is that we derive a substantial portion of our revenue from the sale of a relatively small number of systems to a relatively small number of customers. As a result, our revenues and results of operations for any given quarter may decrease due to factors relating to the timing of orders by, shipments of systems and timing of recognizing these revenues. Furthermore, our quarterly results are affected by the highly cyclical nature of the semiconductor capital equipment market and industries.

We also have a limited ability to predict revenues for future quarterly periods and, as a result, face risks of revenue shortfalls. If the number of systems we actually ship, and thus the amount of revenues we are able to record in any particular quarter, is below our expectations, the adverse effect may be magnified by our inability to adjust spending quickly enough to compensate for the revenue shortfall.

We depend on a small number of large customers, and the loss of one or more of them would lower our revenues.

Like our peers serving the semiconductor market, our customer base is highly concentrated among a limited number of large customers, primarily because the semiconductor industry is dominated by a small number of large companies. We anticipate that our revenues will continue to depend on a limited number of major customers, although the companies considered to be our major customers and the percentage of our revenue represented by each major customer may vary from period to period. The loss of any one of our major customers would adversely affect our sales and revenues. Furthermore, if any of our customers become insolvent or have difficulties meeting their financial obligations to us for any reason, we may suffer losses.

We operate in an extremely competitive market, and if we fail to compete effectively, our revenues and market share will decline.

Although the market for integrated process control systems used in semiconductor manufacturing is currently concentrated and characterized by relatively few participants, the semiconductor capital equipment industry is intensely competitive. We compete with Nanometrics Inc., Therma-Wave Inc., Rudolph Technologies Inc., and KLA-Tencor Corp., which manufacture and sell integrated process control systems. In addition, we compete with established manufacturers of conventional stand-alone measurement equipment, such as KLA-Tencor Corp., and original semiconductor equipment manufacturers, such as Tokyo Electron Ltd. Established companies, both domestic and foreign, compete with our product lines, and new competitors are entering our market. Some of our competitors have greater financial, engineering, manufacturing and marketing resources than we do. If a particular customer selects a competitor's capital equipment, we expect to experience difficulty in selling to that customer for a significant period of time. A substantial investment is required by customers to evaluate, test, select and integrate capital equipment into a production line. As a result, once a manufacturer has selected a particular vendor's capital equipment, we believe that the manufacturer generally relies upon that equipment for the specific production line application and frequently will attempt to consolidate its other capital equipment requirements with the same vendor. Accordingly, unless our systems offer performance or cost advantages that outweigh a customer's expense of switching to our systems, it will be difficult for us to achieve significant sales from that customer once it has selected another vendor's system for an application. We believe that our ability to compete successfully depends on a number of factors both within and outside of our control, including:

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the contribution of our equipment to our customers' productivity;

our product quality and performance;

our global technical service and support;

the return on investment (ROI) of our equipment and its cost of ownership;

the breadth of our product line;

our success in developing and marketing new products. and;

the extendibility of our product

If we fail to compete in a timely and cost-effective manner against current or future competitors, our revenues and market share will decline.

The ongoing consolidation in our industry may harm us if our competitors are able to offer a broader range of products and greater customer support than we can offer.

We believe that the semiconductor capital equipment market is undergoing consolidation. A number of suppliers have been acquired by larger equipment manufacturers. For example, in 2005 Rudolph Technologies Inc. acquired August Technologies Inc., in 2006 Nanometrics Inc. acquired Soluris Inc. and Accent Technologies Inc., and in 2007 KLA-Tencor Corp. acquired Therma-Wave Inc. We believe that similar acquisitions and business combinations involving our competitors and customers may occur in the future. These acquisitions could adversely impact our competitive position by enabling our competitors and potential competitors to expand their product offerings and customer service, which could provide them an advantage in meeting customers' needs, particularly with those customers that seek to consolidate their capital equipment requirements with a smaller number of vendors. The greater resources, including financial, marketing and support resources, of competitors involved in these acquisitions could allow them to accelerate the development and commercialization of new competitive products and the marketing of existing competitive products to their larger installed bases. Accordingly, such business combinations and acquisitions by competitors or customers could jeopardize our competitive position.

We may not be successful in our efforts to identify, complete and integrate future acquisitions, which could disrupt our current business activities and adversely affect our results of operations or future growth.

Any future acquisitions may involve many risks, including the risks of:

diverting management's attention and other resources from our ongoing business concerns;

entering markets in which we have no direct prior experience;

improperly evaluating new services, products and markets;

being unable to maintain uniform standards, controls, procedures and policies;

being unable to integrate new technologies or personnel;

incurring the expenses of any undisclosed or potential liabilities; and

the departure of key management and employees.

If we are unable to successfully complete the acquisition or to effectively integrate any future acquisitions, our ability to grow our business or to operate our business effectively could be reduced, and our business, financial condition and operating results could suffer. Even if we are successful in completing acquisitions, we cannot assure you that we will be able to integrate the operations of the acquired business without encountering difficulty regarding different business strategies with respect to marketing, integration of personnel with disparate business backgrounds and corporate cultures, integration of different point-of-sale systems and other technology and managing relationships with other business partners.

One of our customers has no cancellation fee with regard to cancellation of orders.

One of our largest customers has no cancellation fee with regard to cancellation of its orders. Because of that, our ability to rely on our backlog for future forecasting in so far as it depends on that customer is impaired and can severely harm our financial results.

Because we are small, we depend on a small number of employees who possess both executive and technical expertise, and the loss of any of these key employees would hurt our ability to implement our strategy and to compete effectively.

Because of our small size and our reliance on employees with both executive and advanced technical skills, our success depends significantly upon the continued contributions of our officers and key personnel. All of our key management and technical personnel have expertise, which is in high demand among our competitors, and the loss of any of these individuals could cause our business to suffer. We do not maintain life insurance policies for our officers and directors.

Our lengthy sales cycle increases our exposure to customer delays in orders, which may result in obsolete inventory and volatile quarterly revenues.

Sales of our systems depend, in significant part, upon our customers adding new manufacturing capacity or expanding existing manufacturing capacity, both of which involve a significant capital commitment. We may experience delays in finalizing sales following initial system qualification while a customer evaluates and approves an initial purchase of our systems. In general, for new customers or applications, our sales cycle takes between three and 12 months to complete. During this time, we may expend substantial funds and management effort, but fail to make any sales. Lengthy sales cycles subject us to a number of significant risks, including inventory obsolescence and fluctuations in operating results, over which we have limited control.

Because of the technical nature of our business, our intellectual property is extremely important to our business, and our inability to protect our intellectual property would harm our competitive position.

We have obtained 51 U.S. patents and have 25 U.S. patent applications pending. In addition, we have obtained 32 non-U.S. patents and have more than 50 non-U.S. patent applications pending. In August 8, 2006, in connection with the acquisition by us of substantially all the assets of HyperNex, Inc., HyperNex, Inc. assigned to us all of its right, title, and interest in 8 U.S. patents, 3 non-U.S. patents, 6 patent applications filed in other countries and 3 trademarks registered in the U.S. As of April 30, 2007, the assignment of the 3 non-U.S. patents was not completed.

We cannot assure that:

pending patent applications will be approved;

any patents will be broad enough to protect our technology, will provide us with competitive advantages or will not be challenged or invalidated by third parties; or

the patents of others will not have an adverse effect on our ability to do business.

We also cannot assure you that others will not independently develop similar products, duplicate our products or, if patents are issued to us, design around these patents. Further, because patents may afford less protection under foreign law than is available under U.S. law, we cannot assure that any foreign patents issued to us will adequately protect our proprietary rights.

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In addition to patent protection, we also rely upon trade secret protection, employee and third-party nondisclosure agreements and other intellectual property protection methods to protect our confidential and proprietary information. Despite these efforts, we cannot be certain that others will not otherwise gain access to our trade secrets or disclose our technology.

Furthermore, we may be required to institute legal proceedings to protect our intellectual property. If such legal proceedings are resolved adversely to us, our competitive position and/or results of operations could be harmed. Recently we have agreed to dismiss, without prejudice, all pending patent litigation between us and Nanometrics, Inc., and have further agreed not to file patent suits against the other and/or any supplier or customer of the other party for patent infringement based on offers to sell, actual sales, manufacturing, purchase or use of any equipment of the other party for a period of one year. Each of the parties can reassert any of the claims following the one-year period mentioned above.

There has been significant litigation involving intellectual property rights in the semiconductor and related industries and similar litigation involving Nova could force us to divert resources to defend against this litigation or deter our customers from purchasing our systems.

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We have been, and may in the future be, notified of allegations that we may be infringing intellectual property rights possessed by others. In addition, we may be required to commence legal proceedings against third parties, which may be infringing our intellectual property, in order to defend our intellectual property. In the future, protracted litigation and expense may be incurred to defend ourselves against alleged infringement of third party rights or to defend our intellectual property against infringement by third parties. Adverse determinations in that type of litigation could:

result in our loss of proprietary rights;

subject us to significant liabilities, including treble damages in some instances;

require us to seek licenses from third parties, which licenses may not be available on reasonable terms or at all; or

prevent us from selling our products.

Any litigation of this type, even if we are ultimately successful, could result in substantial cost and diversion of time and effort by our management, which by itself could have a negative impact on our profit margin, competitive position and ability to develop and market new and existing products.

We depend on a limited number of suppliers, and in some cases a sole supplier. Any disruption or termination of these supply channels may adversely affect our ability to manufacture our products and to deliver them to our customers.

We purchase components, subassemblies and services from a limited number of suppliers and occasionally from a single source. Disruption or termination of these sources could occur, and these disruptions could have at least a temporary adverse effect on our operations. To date, we have not experienced any material disruption or termination of our supply sources. A prolonged inability on our part to obtain components included in our systems on a cost-effective basis could adversely impact our ability to deliver products on a timely basis, which could harm our sales and customer relationships.

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We have an agreement for exclusive supply of a critical component in our wide angle x-ray diffraction tool called CrystalX. This exclusivity depends on purchase of a pre-defined number of these critical components from the supplier and a loss of this exclusivity could allow a competitor to utilize this unique component and successfully compete with our offering.

The exclusivity depends on volume of purchases. The design of this component provides unique advantages to our system which in the hands of our competitors may allow them to successfully compete with us. Developing an alternative supplier for this specific component is not trivial.

We are dependent on international sales, which expose us to foreign political and economic risks that could impede our plans for expansion and growth.

Our principal customers are located in the United States, Japan, Taiwan, Singapore, Europe and South Korea and we produce our products in Israel. International operations expose us to a variety of risks that could seriously impact our financial condition and impede our growth. For instance, trade restrictions, changes in tariffs and import and export license requirements could adversely affect our ability to sell our products in the countries adopting or changing those restrictions, tariffs or requirements. This could reduce our sales by a material amount.

Because we derive a significant portion of our revenues from sales in Asia, our sales could be hurt by the instability of Asian economies.

A number of Asian countries have experienced political and economic instability. For instance, Taiwan and China have had a number of disputes, as have North and South Korea, and Japan has for a number of years experienced significant economic instability. We have a subsidiary in Taiwan and we have significant customers in Japan and South Korea as well as in China. An outbreak of hostilities or other political upheaval or economic downturns in these or other Asian countries would likely harm the operations of our customers in these countries, causing our sales to suffer.

A large number of our ordinary shares continue to be owned by a relatively small number of shareholders, whose future sales of our stock, if substantial, may depress our share price.

If our principal shareholders sell substantial amounts of our ordinary shares, including shares issued upon the exercise of outstanding options, the market price of our ordinary shares may fall. As of December 31, 2006, we had 17,104,523 ordinary shares outstanding, of which 7,827,839 shares were held by four shareholders.

Because as of April 20, 2007 five of our shareholders control approximately 56% of our ordinary shares, they can control the outcome of matters submitted to a vote of our shareholders, including the election of directors.

As of April 20, 2007, five of our shareholders controlled approximately 56% of our outstanding ordinary shares (not including options or warrants currently exercisable or exercisable within 60 days of April 20, 2007). As a result, and although we are currently not aware of any voting agreement between such shareholders, if these shareholders voted together or in the same manner, they would have the ability to control the outcome of corporate actions requiring an ordinary majority vote of shareholders as set in the Company's articles of association. Even if these five shareholders do not vote together, each has the ability to influence the outcome of corporate actions requiring the vote of shareholders as set in the Company's article of association.

The market price of our ordinary shares may be affected by a limited trading volume and may fluctuate significantly

There has been a limited public market for our ordinary shares and there can be no assurance that an active trading market for our ordinary shares will continue. An absence of an active trading market could adversely affect our shareholders' ability to sell our ordinary shares in short time periods. Our ordinary shares have experienced, and are likely to experience in the future, significant price and volume fluctuations, which could adversely affect the market price of our ordinary shares without regard to our operating performance.

Risks Related to Operations in Israel

Potential political, economic and military instability in Israel may adversely affect our growth and revenues.

Our principal offices and manufacturing facilities and many of our suppliers are located in Israel. Although most of our sales are currently being made outside Israel, political, economic and military conditions in Israel directly affect our operations. Since the establishment of the State of Israel in 1948, a number of armed conflicts have taken place between Israel and its Arab neighbors. Conflicts between Israel and Palestinian militant groups have been ongoing. A state of hostility, varying in degree and intensity, has led to security and economic problems for Israel. The resumption of hostilities in the region, and the on-going tension in the region, have a negative effect on the stability of the region which might have negative effect on our business and harm our growth and revenues.

Our operations may be disrupted by the obligation of key personnel to perform military service.

Some of our executive officers and employees in Israel are obligated to perform up to 36 days of military reserve duty annually until the age of 40 for those serving in combat units and until the age of 45 for non combatants. This time-period may be extended by the Military Chief of General Staff and the approval of the Minister of Defense or by a directive of the Minister of Defense in the event of a declared national emergency. Our operations could be disrupted by the absence for a significant period of one or more of our executive officers or key employees due to military service. To date, our operations have not been materially disrupted as a result of these military service obligations, and no executive officer or key employee was recruited for any significant time period including during the Second Lebanon War of July 2006. Any disruption in our operations due to such obligations would adversely affect our ability to produce and market our existing products and to develop and market future products.

Because most of our revenues are generated in U.S. dollars, but a significant portion of our expenses is incurred in New Israeli Shekels, our profit margin may be seriously harmed by inflation and currency fluctuations.

We generate most of our revenues in U.S. dollars, but incur a significant portion of our expenses in New Israeli Shekels, commonly referred to as NIS. As a result, we are exposed to risk to the extent that the rate of inflation in Israel exceeds the rate of devaluation of the NIS in relation to the dollar or if the timing of this devaluation lags behind inflation in Israel with respect to such expenses that might increase as a result of inflation in Israel. In that event, the dollar cost of our operations in Israel will increase and our dollar measured results of operations will be adversely affected. Our operations also could be adversely affected if we are unable to hedge against currency fluctuations in the future. Accordingly, we may enter into currency hedging transactions to decrease the risk of financial exposure from fluctuations in the exchange rate of the dollar against the NIS. These measures, however, may not adequately protect us from material adverse effects due to the impact of inflation in Israel.

We participate in government programs under which we receive tax and other benefits. These programs impose restrictions on our ability to use the technologies developed under these programs. In addition, the reduction or termination of these programs would increase our costs.

We receive conditional grants from the Office of the Chief Scientist of the Israeli Ministry of Industry, Trade and Labor for research and development programs that meet specified criteria. We are also eligible to receive tax benefits under Israeli law for capital investments that are designated as approved enterprises. To maintain our eligibility for these programs and tax benefits, we must continue to meet certain conditions, including paying royalties related to grants received and making specified investments in fixed assets. Some of these programs also restrict our ability to manufacture particular products and transfer particular technology, which was developed as part of the approved enterprises outside of Israel, by requiring approval of the research and development committee nominated by the Office of the Chief Scientist of the Israeli Ministry of Industry, Trade and Labor under applicable law. Such approval may be given only if the recipient abides by all the provisions of the law and related regulations. Approval to manufacture products outside of Israel or consent to the transfer of technology, if requested, might not be granted.

If we fail to comply with these conditions in the future, the benefits received could be cancelled. We could also be required to pay increased taxes or refund any benefits previously received, adjusted for inflation and interest. In each of 2004, 2005 and 2006, we recorded an aggregate of \$1.9 million, in conditional grants under Israeli government programs. As of March 30, 2007, our contingent liability to the Office of the Chief Scientist for grants received was approximately \$53 million. From time to time, we submit requests for new grants from the Office of the Chief Scientist and for expansion of our approved enterprise programs. These requests might not be approved. Also, the Israeli government may reduce or eliminate these benefits in the future. The termination or reduction of these grants or tax benefits could harm our business, financial condition and results of operations. In addition, if we increase our activities outside Israel due to, for example, future acquisitions, our increased activities generally will not be eligible for inclusion in Israeli tax benefit programs. Accordingly, our effective corporate tax rate could increase significantly in the future.

Any shareholder with a cause of action against us as a result of buying, selling or holding our ordinary shares may have difficulty asserting a claim under U.S. securities laws or enforcing a U.S. judgment against us or our officers, directors or Israeli auditors.

We are organized under the laws of the State of Israel, and we maintain most of our operations in Israel. Most of our officers and directors as well as our Israeli auditors reside outside of the United States and a substantial portion of our assets and the assets of these persons are located outside the United States. Therefore, if you wish to enforce a judgment obtained in the United States against us, or our officers, directors and auditors, you will probably have to file a claim in an Israeli court. Additionally, you might not be able to bring civil actions under U.S. securities laws if you file a lawsuit in Israel. We have been advised by our Israeli counsel that Israeli courts generally enforce a final executory judgment of a U.S. court for liquidated amounts in civil matters after a hearing in Israel. If a foreign judgment is enforced by an Israeli court, it will be payable in Israeli currency. However, payment in the local currency of the country where the foreign judgment was given shall be acceptable, subject to applicable foreign currency restrictions.

Our shares are listed for trade on more than one stock exchange, and this may result in price variations.

Our ordinary shares are listed for trading on the Nasdaq Global Market and on the Tel Aviv Stock Exchange. This may result in price variations. Our ordinary shares are traded on these markets in different currencies, U.S. dollars on the Nasdaq Global Market and New Israeli Shekels on the Tel Aviv Stock Exchange. These markets have different opening times and close on different days. Different trading times and differences in exchange rates, among other factors, may result in our shares being traded at a price differential on these two markets. In addition, market influences in one market may influence the price at which our shares are traded on the other.

We may be classified as a passive foreign investment Company and, as a result, our U.S. shareholders may suffer adverse tax consequences

Generally, if for any taxable year 75% or more of our gross income is passive income, or at least 50% of our assets are held for the production of, or produce, passive income, we may be characterized as a passive foreign investment company for U.S. federal income tax purposes. Our passive income would not include income derived from the sale of our products, but would include amounts derived by reason of a temporary investment of any cash amounts. This characterization could result in adverse U.S. tax consequences to our shareholders, including having gain realized on the sale of our shares be treated as ordinary income, as opposed to capital gain income, and having potentially punitive interest charges applied to such sales proceeds. U.S. shareholders should consult with their own U.S. tax advisors with respect to the U.S. tax consequences of investing in our ordinary shares.

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We believe that in 2006 we were not a passive foreign investment company. Nonetheless, because of the difficulty determining the value of our assets, there is a risk that we were a passive foreign investment company in 2006. Currently we expect that we will not be a passive foreign investment company in 2007. However, passive foreign investment company status is determined as of the end of the full tax year and is dependent on a number of factors, including the value of a corporation's assets and the amount and type of its gross income. Therefore, there can be no assurances that we will not become a passive foreign investment company for the current fiscal year ending on December 31, 2007 or any future year.

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USE OF PROCEEDS

We will not receive any of the proceeds from the sale of our ordinary shares by the selling shareholders. Of the 4,719,597 ordinary shares covered by the registration statement of which this prospectus is a part, 1,453,485 ordinary shares are, prior to their resale pursuant to this prospectus, issuable upon exercise of warrants. We may receive the exercise price, initially \$3.05 per share or approximately \$4,433,129 in the aggregate, upon exercise of the warrants issued to the selling shareholders. The warrants have a cashless exercise provision that allows the holder to receive a reduced number of ordinary shares without paying the exercise price in cash.

We have agreed to bear all of the expenses incurred in connection with the registration of these shares. To the extent we receive any cash upon any exercise of the warrants, we expect to use that cash for general corporate purposes.

CAPITALIZATION

The following table sets forth our consolidated unaudited capitalization as of March 31, 2007 on an actual basis. The financial date in the following table should be read in conjunction with our consolidated financial data and notes thereto incorporated by reference herein.

	As of March 31, 2007 (unaudited, in thousands)
Shareholders' equity:	
Ordinary shares, par value NIS 0.01 per share: 40,000,000 shares authorized; 19,080,487 shares issued and outstanding ⁽¹⁾	\$ 55
Additional paid-in capital	82,319
Deferred equity-based compensation	(303)
Accumulated other comprehensive income	23
Accumulated deficit	(52,795)
Total shareholders' equity	\$ 29,299

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- (1) Does not include 1,453,485 ordinary shares issuable upon the exercise of warrants outstanding as of March 31, 2007 at an exercise price of \$3.05 per share and 3,425,597 ordinary shares issuable upon the exercise of options outstanding as of March 31, 2007 at a weighted average exercise price of \$3.02 per share.

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SELLING SHAREHOLDERS

The following table provides certain information with respect to the ordinary shares beneficially owned by each selling shareholder as of April 20, 2007. Except as otherwise noted in the footnotes following the table, none of the selling shareholders has had a material relationship with us within the past three years.

All of the ordinary shares beneficially owned by the selling shareholders are registered for sale pursuant to this prospectus. However, the selling shareholders are not under any obligation to sell all or any portion of their ordinary shares, nor are they obligated to sell any of their ordinary shares immediately under this prospectus. No selling shareholder has indicated to us that it presently intends to sell shares offered by this prospectus. Since the selling shareholders are not obligated to sell their ordinary shares, we do not know how many ordinary shares each of them will own when this offer is terminated.

In the following table, we have determined the number and percentage of shares beneficially owned in accordance with Rule 13d-3 of the Securities Exchange Act of 1934, as amended, or the Exchange Act, based on information provided to us by the selling shareholders, and this information does not necessarily indicate beneficial ownership for any other purpose. In determining the number of shares of our ordinary shares beneficially owned by a person and the percentage ownership of that person, we include any shares as to which the person has sole or shared voting power or investment power, as well as any shares subject to warrants or options held by that person that are currently exercisable or exercisable within 60 days after April 20, 2007. Applicable percentages are based on 19,107,567 ordinary shares outstanding on April 20, 2007.

	Ordinary Shares Beneficially Owned Prior to the Offering		Number of Ordinary Shares Registered Hereby for Sale	Ordinary Shares Beneficially Owned After the Offering	
	Number	Percent		Number	Percent
Clal Electronics Industries Ltd. ⁽¹⁾	4,858,627	24.32%	2,034,882	2,823,745	14.13%
Senvest Israel Partners LP ⁽²⁾	635,735	3.30%	406,976	228,759	*
Senvest Master Fund LP ⁽³⁾	594,763	3.08%	542,634	52,129	*
Draper Triangle Ventures, LP ⁽⁴⁾	529,956	2.77%	529,956	--	--
Senvest International LLC ⁽⁵⁾	407,175	2.11%	406,976	199	*
CID Seed Fund, L.P. ⁽⁶⁾	177,539	*	177,539	--	--
Draper Fisher Jurvetson Fund VI, L.P. ⁽⁷⁾	164,365	*	164,365	--	--
Advanced Technology Materials, Inc. ⁽⁸⁾	130,932	*	130,932	--	--
Glen Arden Associates ⁽⁹⁾	71,602	*	71,602	--	--
David S. Kurtz ⁽¹⁰⁾	71,039	*	71,039	--	--
Krzysztof Jan Kozaczek ⁽¹¹⁾	31,045	*	31,045	--	--
Ben Franklin Technology Partners CNP ⁽¹²⁾	30,549	*	30,549	--	--
H.L. PAC Partnership ⁽¹³⁾	26,848	*	26,848	--	--
Paul R. Moran ⁽¹⁴⁾	24,628	*	24,628	--	--
James D. Roberge ⁽¹⁵⁾	17,898	*	17,898	--	--
Sonhender L.P. ⁽¹⁶⁾	8,949	*	8,949	--	--
Brian M. McInerney ⁽¹⁷⁾	8,949	*	8,949	--	--
Draper Associates, L.P. ⁽¹⁸⁾	7,775	*	7,775	--	--
Robert R. Anderson ⁽¹⁹⁾	6,583	*	6,583	--	--
Gary Hillman ⁽²⁰⁾	6,583	*	6,583	--	--
William F. Stotz ⁽²¹⁾	6,583	*	6,583	--	--
Draper Fisher Jurvetson Partners VI, LLC ⁽²²⁾	4,597	*	4,597	--	--
Draper Triangle Ventures Co-Investment Fund, LP ⁽²³⁾	1,709	*	1,709	--	--
Total Ordinary Shares Registered Hereby:			4,719,597		

* Less than 1%.

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- (1) Including 872,092 ordinary shares issuable within 60 days of April 20, 2007 upon the exercise of warrants issued in the private placement. The principal parent companies of the IDB Group are IDB Holding Corporation Ltd., or IDBH, and its majority-owned subsidiary, IDBD Corporation Ltd., or IDBD. Clal Industries and Investments Ltd., or Clal and Clal Electronics Industries Ltd, or CEI (a wholly owned subsidiary of Clal) are majority-owned subsidiaries of IDBD. As of April 20th, 2007, IDBH is controlled as follows:

Ganden Holdings Ltd., or Ganden, which is a private Israeli company controlled by Nochi Dankner (who also is the chairman of IDBH, IDBD and Clal) and his sister Shelly Bergman, holds, directly and through a wholly-owned subsidiary, approximately 44.88% of the outstanding shares of IDBH. Shelly Bergman, through a wholly-owned company, holds approximately 7.23% of the outstanding shares of IDBH;

Avraham Livnat Ltd., or Livnat, which is a private company controlled by Avraham Livnat (one of whose sons, Zvi Livnat, is a director and executive vice president of IDBH, Deputy Chairman of IDBD, co-chief executive officer of Clal, and another son, Shay Livnat, is a director of IDBD and Clal) holds, directly and through a wholly-owned subsidiary, approximately 10.38% of the outstanding shares of IDBH; and

Manor Holdings BA Ltd., or Manor, a private company controlled by Ruth Manor (whose husband, Isaac Manor, is deputy chairman of IDBH and a director of IDBD and Clal, and whose son, Dori Manor, is a director of IDBH, IDBD and Clal) holds, directly and through a majority-owned subsidiary, approximately 10.37% of the outstanding shares of IDBH.

Subsidiaries of Ganden, Livnat and Manor have entered into a shareholders agreement with respect to shares of IDBH constituting 31.02%, 10.34% and 10.34%, respectively, of the outstanding shares of IDBH for the purpose of maintaining and exercising control of IDBH as a group. Their additional holdings in IDBH are not subject to the shareholders agreement. The term of the shareholders agreement expires in May 2023.

Most of the foregoing shares in IDBH have been pledged to financial institutions as collateral for loans taken to finance the purchase of the shares. Upon certain events of default, these financial institutions may foreclose on the loans and assume ownership of or sell the shares.

Based on the foregoing, IDBH (by reason of its control of IDBD and by reason of IDBD's control of Clal and CEI), Ganden, Livnat and Manor (by reason of their control of IDBH), Mr. Nochi Dankner, Ms. Shelly Bergman, Mr. Avraham Livnat and Ms. Ruth Manor (by reason of their control of Ganden, Livnat and Manor, respectively) may be deemed to share with CEI the power to vote and dispose of our shares held by CEI. The address of Clal Electronics Industries Ltd. is: 3 Azrieli Center, Tel Aviv 67021, Israel.

- (2) Including 174,418 ordinary shares issuable within 60 days of April 20, 2007 upon the exercise of warrants issued in the private placement. The address of Senvest Israel Partners LP is: c/o Richard Mashaal, 110 East 55th St., #1600, New York, NY 10022. Senvest Israel Partners LP is affiliated with Rima Management, LLC. Based on Schedule 13G filed by Rima Management, LLC and Richard Mashaal with the Commission on March 23, 2007, the reporting persons share voting and dispositive power with respect to 1,640,673 ordinary shares (these shares include the shares held by Senvest Israel Partners LP). The reporting persons disclaim beneficial ownership in the shares reported except to the extent of their pecuniary interest therein.
- (3) Including 232,557 ordinary shares issuable within 60 days of April 20, 2007 upon the exercise of warrants issued in the private placement. The address of Senvest Master Fund LP is: c/o Richard Mashaal, 110 East 55th St., #1600, New York, NY 10022. Senvest Master Fund LP is affiliated with Rima Management, LLC. Based on Schedule 13G filed by Rima Management, LLC and Richard Mashaal with the Commission on March 23, 2007, the reporting persons share voting and dispositive power with respect to 1,640,673 ordinary shares (these shares include the shares held by Senvest Master Fund LP). The reporting persons disclaim beneficial ownership in the shares reported except to the extent of their pecuniary interest therein.
- (4) The address of Draper Triangle Ventures, LP is 2 Gateway Center, Suite 2000, Pittsburgh, PA 15222.
- (5) Including 174,418 ordinary shares issuable within 60 days of April 20, 2007 upon the exercise of warrants issued in the private placement. The address of Senvest International LLC is: c/o Richard Mashaal, 110 East 55th St., #1600, New York, NY 10022. Senvest International LLC is affiliated with Rima Management, LLC. Based on Schedule 13G filed by Rima Management, LLC and Richard Mashaal with the Commission on March 23, 2007, the reporting persons share voting and dispositive power with respect to 1,640,673 ordinary shares (these shares include the shares held by Senvest International LLC). The reporting persons disclaim beneficial ownership in the shares reported except to the extent of their pecuniary interest therein.
- (6) The address of CID Seed Fund L.P. is One American Square #2850, Indianapolis, IN 46282.

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Draper Fisher Jurveston Management Co. VI, LLC may be deemed to beneficially own the shares held by Draper Fisher Jurveston Fund VI, L.P. The address of Draper Fisher Jurveston Fund VI, L.P. is 2882 Sand Hill Road, Suite 150, Menlo Park, CA 94025.

- (8) Douglas A. Neugold, Daniel P. Sharkey and Cynthia L. Shereda, executive officers of Advanced Technology Materials, Inc. may be deemed to beneficially own the shares held by Advanced Technology Materials, Inc. The address of Advanced Technology Materials, Inc. is 7 Commerce Drive, Danbury, CT 06810.
- (9) John A. Staley, IV may be deemed to beneficially own the shares held by Glen Arden Associates as the general partner. The address of Glen Arden Associations is One Oxford Centre, Suite 3950, Pittsburgh, PA 15219.

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- (10) David Kurtz is Vice President/General Manager of Nova Microstructure Division since August 2006. The address of David S. Kurtz is 1304 Chestnut Ridge Dr., State College, PA 16803.
- (11) Krzysztof Jan Kozaczek is Vice President of R&D of Nova Microstructure Division since August 2006. The address of Krzysztof Jan Kozaczek is 222 E. Irvin Ave., State College, PA 16801.
- (12) The address of Ben Franklin Technology Partners CNP is 115 Technology Center, University Park, PA 16802.
- (13) The address of H.L. PAC Partnership is c/o Henry J. Gailliot, General Partner, 5734 W. Woodland Road, Pittsburgh, PA 15232.
- (14) Paul R. Moran is Vice President of Nova Microstructure Division since August 2006. The address of Paul R. Moran is 406 S. High St., Port Matilda, PA 16870.
- (15) The address of James D. Roberge is 141 Misty Meadow Lane, Murrysville, PA 15668.
- (16) The address of Sonhender L.P. is 809 W. Waldheim Road, Pittsburgh, PA 15215.
- (17) The address of Brain M. McInerney is 204 Glenhaven Lane, Pittsburgh, PA 15238.
- (18) Draper Associates, Inc. may be deemed to beneficially own the shares held by Draper Associates, L.P. The address of Draper Associates, L.P. is 2882 Sand Hill Road, Suite 150, Menlo Park, CA 94025.
- (19) The address of Robert R. Anderson is 6755 N. Hole in the Wall Way, Tucson, AZ 85750.
- (20) The address of Gary Hillman is 15 Goodhart Dr., Livingston, NJ 07039.
- (21) The address of William F. Stutz is 1330 Shady Avenue, Pittsburgh, PA 15217.
- (22) Timothy C. Draper, John Fisher and Steve Jurveston may be deemed to beneficially own the share held by Draper Fisher Jurveston Partners VI, LLC. The address of Draper Fisher Jurveston Partners VI, LLC is 2882 Sand Hill Road, Suite 150, Menlo Park, CA 94025.
- (23) The address of Draper Triangle Ventures Co-Investment Fund, LP is 2 Gateway Center, Suite 2000, Pittsburgh, PA 15222.

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PLAN OF DISTRIBUTION

The selling shareholders and any of their pledgees, donees, transferees, assignees and successors-in-interest may, from time to time, sell any or all of their ordinary shares on any stock exchange, market or trading facility on which the shares are traded or in private transactions. These sales may be at fixed or negotiated prices. The selling shareholders may use any one or more of the following methods when selling shares:

ordinary brokerage transactions and transactions in which the broker-dealer solicits investors;

block trades in which the broker-dealer will attempt to sell the shares as agent but may position and resell a portion of the block as principal to facilitate the transaction;

purchases by a broker-dealer as principal and resale by the broker-dealer for its account;

an exchange distribution in accordance with the rules of the applicable exchange;

privately negotiated transactions;

broker-dealers may agree with the selling shareholders to sell a specified number of such shares at a stipulated price per share;

a combination of any such methods of sale; and

any other method permitted pursuant to applicable law.

The selling shareholders may also sell ordinary shares under Rule 144 under the Securities Act, if available, rather than under this prospectus.

Broker-dealers engaged by the selling shareholders may arrange for other brokers-dealers to participate in sales. Broker-dealers may receive commissions or discounts from the selling shareholders (or, if any broker-dealer acts as agent for the purchaser of shares, from the purchaser) in amounts to be negotiated. The selling shareholders do not expect these commissions and discounts to exceed what is customary in the types of transactions involved.

The selling shareholders and any broker-dealers or agents that are involved in selling the shares may be deemed to be underwriters within the meaning of the Securities Act in connection with such sales. In such event, any commissions received by such broker-dealers or agents and any profit on the resale of the shares purchased by them may be deemed to be underwriting commissions or discounts under the Securities Act. Discounts, concessions, commissions and similar selling expenses, if any, that can be attributed to the sale of securities will be paid by the selling shareholder and/or the purchasers. Each selling shareholder has represented and warranted to us that it acquired the securities subject to the registration statement of which this prospectus is a part in the ordinary course of such selling shareholder's business and, at the time of its purchase of such securities such selling shareholder had no agreements or understandings, directly or indirectly, with any person to distribute any such securities.

If a selling shareholder uses this prospectus for any sale of ordinary shares, it will be subject to the prospectus delivery requirements of the Securities Act. The selling shareholders will be responsible to comply with the applicable provisions of the Securities Act and Exchange Act, and the rules and regulations thereunder promulgated, including, without limitation, Regulation M, as applicable to such selling shareholders in connection with resales of their respective shares under the registration statement.

We are required to pay all fees and expenses incident to the registration of the ordinary shares, but we will not receive any proceeds from the sale of the ordinary shares. Of the 4,719,597 ordinary shares covered by the registration statement of which this prospectus is a part, 1,453,485 ordinary shares are, prior to their resale pursuant to this prospectus, issuable upon exercise of warrants. We may receive the exercise price upon cash exercise of the warrants issued to the investors in the private placement, which is initially \$3.05 per share, or approximately \$4,433,129 in the aggregate. We have agreed to indemnify certain selling shareholders against certain losses, claims, damages and liabilities, including liabilities under the Securities Act.

EXPENSES OF THE OFFERING

We estimate the registration expenses to be approximately \$35,000, which include the following categories of expenses (all amounts are estimated except the SEC registration):

SEC registration fee	\$	406
Printing and engraving expenses		1,200
Legal fees and expenses		25,000
Accounting fees and expenses		4,000
Miscellaneous expenses		4,394
		<hr/>
Total	\$	35,000
		<hr/>

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INCORPORATION OF CERTAIN DOCUMENTS BY REFERENCE

The Commission allows us to incorporate by reference into this prospectus the information we file with them, which means that we can disclose important information to you by referring you to these documents. We hereby incorporate by reference the following:

- (1) The description of our ordinary shares contained in our registration statement on Form 8-A, as filed with the Commission on March 22, 2000;
- (2) Our Annual Report on Form 20-F for the year ended December 31, 2006, as filed with the Commission on May 11, 2007; and
- (3) Our Report on Form 6-K, as filed with the Commission on May 7, 2007.

In addition, all subsequent annual reports on Form 20-F and all subsequent filings on Forms 10-Q and 8-K filed pursuant to the Exchange Act after the date of this prospectus and before the termination of this offering will be deemed to be incorporated by reference in this prospectus and to be a part of this prospectus from the date those documents are filed. We may also incorporate in this prospectus any Form 6-K which we file with the Commission by identifying in such form that it is being incorporated by reference into this prospectus. Any statement we make in this prospectus may be modified or superseded by statements we make in documents which we incorporate by reference into this prospectus and which are filed after the date of this prospectus. If we make a statement in a previously-filed document which is incorporated by reference into this prospectus, that statement will be modified or superseded by statements in this prospectus or documents incorporated by reference into this prospectus which have a later filing date. You should read this prospectus together with all documents incorporated by reference.

You may request a copy of any document incorporated by reference in this prospectus at no cost. To receive a copy, write or call us at:

Nova Measuring Instruments Ltd.
 Weizmann Science Park
 Building 22, 2nd Floor
 Ness-Ziona 76100, Israel
 Attention: Orly Dean, Corporate Secretary
 + 972 (8) 938-7505

You should rely only on the information incorporated by reference or provided in this prospectus or any prospectus supplement. We have not authorized anyone else to provide you with different information. You should not assume that the information in this prospectus or any prospectus supplement is accurate as of any date other than the date on the front page of those documents.

No dealer, salesperson or other person is authorized to give any information or to represent anything not contained in this prospectus. You must not rely on any unauthorized information or representations. This prospectus is an offer to sell only the ordinary shares offered hereby, but

only under circumstances and in jurisdictions where it is lawful to do so. The information contained in this prospectus is current only as of its date.

LEGAL MATTERS

The validity of the ordinary shares being offered pursuant to this prospectus has been passed upon by our attorneys, Gross, Kleinhendler, Hodak, Halevy, Greenberg & Co., Tel Aviv, Israel.

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EXPERTS

The annual consolidated financial statements incorporated in this prospectus by reference to the our Annual Report on Form 20-F for the fiscal year ended December 31, 2006, have been audited by Brightman Almagor & Co., independent registered public accounting firm, a member firm of Deloitte Touche Tohmatsu, as stated in their report, which is incorporated herein by reference and have been so incorporated in reliance on the report of such firm given upon their authority as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

We have filed with the Commission a registration statement on Form F-3 under the Securities Act, with respect to the ordinary shares offered hereby. This prospectus, which is part of the registration statement, does not contain all of the information in the registration statement. Certain items of the registration statement are contained in exhibits and schedules as permitted by the rules and regulations of the Commission. Statements made in this prospectus as to the contents of any contract, agreement or other document referred to are not necessarily complete; you should read any such contract, agreement or other document filed as an exhibit to the registration statement for a more complete description of the matter involved, and any discussion of such exhibits is qualified in its entirety by reference to the exhibits.

We are subject to the informational requirements of the Exchange Act and file reports and other information with the Commission. Reports and other information which we file with the Commission, including the registration statement on Form F-3 of which this prospectus is a part, may be inspected and copied at the public reference facilities of the Commission at 100 F Street, N.E., Washington, D.C. 20549. You may obtain information regarding the operation of the public reference room by calling the Commission at 1-800-SEC-0330. In addition, the Commission maintains a web site that contains reports, proxy and information statements and other information regarding issuers that file electronically with the Commission at <http://www.sec.gov>. Our Internet address is www.nova.co.il. Information contained on our website does not constitute a part of this prospectus.

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PART II

INFORMATION NOT REQUIRED IN PROSPECTUS

Item 8. Indemnification of Directors and Officers

Exemption of Office Holders under the Israeli Companies Law

The Israeli Companies Law of 1999, or the Companies Law, provides that an Israeli company cannot exculpate an office holder from liability with respect to a breach of his duty of loyalty, but may exculpate in advance an office holder from his liability to the company, in whole or in part, with respect to a breach of his duty of care (except in connection with distributions), provided the articles of association of the company allow it to do so. Our Articles of Association allow us to do so.

The Companies Law was recently amended to permit indemnification of reasonable litigation expenses as well, including attorneys' fees, expended by the office holder as a result of an investigation or proceeding instituted against him by a competent authority, provided that such

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investigation or proceeding concluded without the filing of an indictment against him and either (A) concluded without the imposition of any financial liability in lieu of criminal proceedings or (B) concluded with the imposition of a financial liability in lieu of criminal proceedings but relates to a criminal offense that does not require proof of malice aforethought.

The recent amendment to the Companies Law also provides that an undertaking by a company to indemnify an office holder must be limited to events which its board of directors deems to be foreseeable in light of the company's actual operations at the time of the undertaking and limited to a sum or criterion that the board of directors determines to be reasonable under the circumstances, and the undertaking must delineate those events and such sum or criterion which the board determined to be reasonable. This amendment to the Companies Law imposes these conditions only on undertakings to indemnify an office holder for financial liabilities imposed by judgments but not for litigation expenses.

The Companies Law provides that a company may not indemnify an office holder for, nor enter into an insurance contract that would provide coverage for any monetary liability incurred as a result of any of the following:

a breach by the office holder of his duty of loyalty unless the office holder acted in good faith and had a reasonable basis to believe that the act would not prejudice the company;

a breach by the office holder of his duty of care if such breach was done intentionally or recklessly; excluding mere negligence;

any act or omission done with the intent to derive an illegal personal benefit; or

any fine levied against the office holder as a result of a criminal offense.

Required Approvals

In addition, pursuant to the Companies Law, indemnification of and procurement of insurance coverage for our office holders must be approved by its audit committee and board of directors and, for indemnification and insurance for directors, also by its shareholders.

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Insurance and Indemnification of Directors and Officers under the Company's Articles of Association

Subject to the provisions of the Companies Law, under the Company's amended Articles of Association, the Company is permitted to exempt in advance any director or officer from any liability to the Company attributed to damage caused by breach of the director's or officer's duty of care owed to the Company, except for such breach of duty of care in distribution (as defined by the Companies Law). Subject to the provisions of the Companies Law, the Company may procure directors' and officer's liability insurance for the following:

breach of duty of care by any director or officer owed to the Company or any other person;

breach of fiduciary duty by any director or officer owed to the Company, provided that such director or officer acted in good faith and had a reasonable basis to assume that the action would not harm the best interests of the Company; or

a monetary liability imposed on the director or officer in favor of a third party due to activities carried out in his capacity as a director or officer of the Company.

Subject to the provisions of the Companies Law, the Company may undertake retroactively to indemnify a director or company officer in respect of a liability or expense imposed on him or incurred by him as a result of an act carried out in his capacity as a director or officer of the Company. Such indemnity may be issued in respect of a liability or expense as follows:

a monetary liability imposed on the director or officer in favor of a third party under a judgment, including a judgment by way of compromise or a judgment of an arbitrator approved by a court;

reasonable litigation expenses, including attorneys' fees, incurred by the director or officer due to an inquiry he was under or a proceeding filed against him by an authority, that ended without filing a charge sheet and without having incurred any monetary

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liability as an alternative to the criminal proceedings, or that ended without filing a charge sheet but with an imposition of a monetary liability as an alternative to the criminal proceedings in an offense not requiring proof of *mens rea*; or

reasonable litigation expenses, including attorneys' fees, incurred by the director or officer charged to him by the court, in a proceeding filed against him by or on behalf of the Company or by any other person, or for a criminal charge from which he was acquitted or for a criminal charge in which he was found guilty of an offense not requiring proof of *mens rea*.

Subject to the provisions of the Companies Law, the Company may undertake in advance to indemnify a director or officer in respect of a liability or expense imposed on him as a result of an act carried out in his capacity as a director or officer, provided that the undertaking will be limited as follows:

a monetary liability imposed on the director or officer in favor of a third party under a judgment, including a judgment by way of compromise or a judgment of an arbitrator approved by a court. However, such undertaking will be limited to the kinds of events that in the Board's opinion are foreseeable at the time of the issue of the undertaking and will be limited to the amount determined by the board of directors as reasonable under the circumstances, and that the kinds of events and the amounts will be mentioned in such undertaking in writing;

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reasonable litigation expenses, including attorney's fees incurred by the director or officer due to an inquiry he was under or a proceeding filed against him by an authority, that ended without filing a charge sheet and without having incurred any monetary liability as an alternative to the criminal proceedings, or that ended without filing a charge sheet but with an imposition of a monetary liability as an alternative to the criminal proceedings, in an offense not requiring proof of *mens rea*; and

reasonable litigation expenses, including attorney's fees, incurred by the director or officer or charged to him by the court, in a proceeding filed against him by or on behalf of the company or by any other person, or for a criminal charge from which he was acquitted or for a criminal charge in which he was found guilty of an offense not requiring proof of *mens rea*.

Item 9. Exhibits

See the Exhibit Index on the page immediately preceding the exhibits for a list of exhibits filed as part of this registration statement on Form F-3, which Exhibit Index is incorporated herein by reference.

Item 10. Undertakings

The undersigned Registrant hereby undertakes:

- (1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:
 - (i) To include any prospectus required by Section 10(a)(3) of the Securities Act;
 - (ii) To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated offering range may be reflected in the form of prospectus filed with the Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than a 20% change in the maximum aggregate offering price set forth in the Calculation of Registration Fee table in the effective registration statement; and
 - (iii) To include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement.

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provided, however, that paragraphs (1)(i), (1)(ii) and (1)(iii) do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in periodic reports filed with or furnished to the Commission by the registrants pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934 that are incorporated by reference in the registration statement;

(2) That, for the purpose of determining any liability under the Securities Act of 1933, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof.

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(3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.

(4) To file a post-effective amendment to the Registration Statement to include any financial statements required by Item 8.A of Form 20-F at the start of any delayed offering or throughout a continuous offering. A post-effective amendment need not be filed to include financial statements and information required by Section 10(a)(3) of the Securities Act or Rule 3-19 of this chapter if such financial statements and information are contained in periodic reports filed with or furnished to the commission by the registrant pursuant to Section 13 or Section 15(d) of the Securities Exchange Act of 1934 that are incorporated by reference in the Form F-3.

(5) The undersigned Registrant hereby undertakes that, for purposes of determining any liability under the Securities Act of 1933, each filing of the Registrant's annual report pursuant to Section 13(a) or 15(d) of the Exchange Act of 1934 (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Securities Act of 1934) that is incorporated by reference in the Registration Statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof.

(6) The undersigned Registrant hereby undertakes to deliver or cause to be delivered with the Prospectus, to each person to whom the Prospectus is sent or given, the latest annual report, to security holders that is incorporated by reference in the Prospectus and furnished pursuant to and meeting the requirements of Rule 14a-3 or Rule 14c-3 under the Securities Exchange Act of 1934; and, where interim financial information required to be presented by Article 3 of Regulation S-X is not set forth in the Prospectus, to deliver, or cause to be delivered to each person to whom the Prospectus is sent or given, the latest quarterly report that is specifically incorporated by reference in the Prospectus to provide such interim financial information.

(7) Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the Registrant pursuant to the foregoing provisions, or otherwise, the Registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the Registrant of expenses incurred or paid by a director, officer or controlling person of the Registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the Registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against the public policy as expressed in the Act and will be governed by the final adjudication of such issue.

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SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form F-3 and has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Ness-Ziona, State of Israel, on the 11th day of May, 2007.

NOVA MEASURING INSTRUMENTS LTD.

By: */s/ Gabi Seligsohn*

Gabi Seligsohn
President & Chief Executive Officer

SIGNATURES

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We, the undersigned directors and/or officers of Nova Measuring Instruments Ltd. (the Company), hereby severally constitute and appoint Gabi Seligsohn and Dror David, and each of them singly, our true and lawful attorneys, with full power to any of them, and to each of them singly, to sign for us and in our names in the capacities indicated below the registration statement on Form F-3 filed herewith, and any and all pre-effective and post-effective amendments to said registration statement, and any registration statement filed pursuant to Rule 462(b) under the Securities Act of 1933, as amended, in connection with the registration under the Securities Act of 1933, as amended, of equity securities of the Company, and to file or cause to be filed the same, with all exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done in connection therewith, as fully to all intents and purposes as each of them might or could do in person, and hereby ratifying and confirming all that said attorneys, and each of them, or their substitute or substitutes, shall do or cause to be done by virtue of this Power of Attorney.

Pursuant to the requirements of the Securities Act of 1933, this registration statement has been signed by the following persons in the capacities and on the dates indicated:

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<i>/s/ Gabi Seligsohn</i> Gabi Seligsohn	President & Chief Executive Officer (principal executive officer)	May 11, 2007
<i>/s/ Dror David</i> Dror David	Chief Financial Officer (principal financial officer and principal accounting officer)	May 11, 2007
<i>/s/ Micha Brunstein</i> Micha Brunstein	Chairman of the Board of Directors	May 11, 2007
<i>/s/ Giora Dishon</i> Giora Dishon	Director	May 11, 2007
<i>/s/ Moshe Finarov</i> Moshe Finarov	Director	May 11, 2007
 Avi Kerbs	Director	
<hr/>		
<i>/s/ Joseph Ciechanover</i> Joseph Ciechanover	Director	May 11, 2007
<i>/s/ Alon Dumanis</i> Alon Dumanis	Director	May 11, 2007
 Dan Falk	Director	
<i>/s/ Naama Zeldis</i>	Director	May 11, 2007

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Naama Zeldis

Pursuant to the requirements of the Securities Act of 1933, as amended, the undersigned, the duly authorized representative in the United States of Nova Measuring Instruments Ltd. has signed this registration statement on the 11th day of May, 2007.

NOVA MEASURING INSTRUMENTS INC.

By: */s/ Maori Marcan*

Maori Marcan
President

EXHIBIT INDEX

<u>Exhibit Number</u>	<u>Description</u>
3.1	Articles of Association of the Registrant, as amended (incorporated by reference to Exhibit 1.1 to the Registrant's Annual Report on Form 20-F for the fiscal year ended December 31, 2006, as filed with the Commission on May 11, 2007)
4.1*	Specimen Certificate for Ordinary Shares
5.1*	Opinion of Gross, Kleinhendler, Hodak, Halevy, Greenberg & Co.
23.1*	Consent of Gross, Kleinhendler, Hodak, Halevy, Greenberg & Co. (included in Exhibit 5.1)
23.2*	Consent of Brightman Almagor & Co., a member of Deloitte Touche Tohmatsu
24.1*	Power of Attorney (included on signature page)
99.1	Amended and Restated Asset Purchase Agreement, dated as of August 8, 2006, by and among the Registrant, HyperNex, Inc. the Stockholders listed on Schedule 4(a) therein (incorporated by reference to Exhibit 4.16 to the Registrant's Annual Report on Form 20-F for the fiscal year ended December 31, 2006, as filed with the Commission on May 11, 2007)
99.2	Share Purchase Agreement, dated as of February 28, 2007, by and between the Registrant and the investors identified on the signature pages thereto, including the form of warrant (incorporated by reference to Exhibit 4.19 to the Registrant's Annual Report on Form 20-F for the fiscal year ended December 31, 2006, as filed with the Commission on May 11, 2007)

* Filed herewith.
