

UNIVERSAL DISPLAY CORP \PA\  
Form 424B5  
March 01, 2004

SUBJECT TO COMPLETION, DATED MARCH 1, 2004

PRELIMINARY PROSPECTUS SUPPLEMENT  
(To Prospectus dated February 5, 2004)

2,900,000 Shares

[Universal Display Corporation Logo]

Common Stock

We are selling 2,900,000 shares of our common stock.

Our common stock is quoted on the Nasdaq National Market under the symbol "PANL" and listed on the Philadelphia Stock Exchange under the symbol "PNL." On February 26, 2004, the last reported sale price of our common stock on the Nasdaq National Market was \$14.72 per share.

Our business and an investment in our common stock involve significant risks. These risks are described under the caption "Risk Factors" beginning on page S-5 of this prospectus supplement.

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

	Per Share	Total
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Public offering price .....	\$	\$
Underwriting discounts and commissions .....	\$	\$
Proceeds, before expenses, to us .....	\$	\$

The underwriters may also purchase up to an additional 435,000 shares of common stock from us at the public offering price, less the underwriting discounts and commissions, to cover over allotments.

The underwriters expect to deliver the shares in New York, New York on \_\_\_\_\_, 2004.

SG Cowen

Needham & Company, Inc.

Harris Nesbitt Gerard

, 2004

The information in this preliminary prospectus supplement is not complete and may be changed. A registration statement relating to these securities has been filed with the Securities and Exchange Commission and has been declared effective. This preliminary prospectus supplement and the accompanying prospectus are not an offer to sell these securities and we are not soliciting an offer to buy these securities in any jurisdiction where the offer or sale is not permitted.

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You should rely only on the information contained in this prospectus supplement, the accompanying prospectus and the documents we incorporate by reference in the accompanying prospectus. We have not, and the underwriters have not, authorized anyone to provide you with information different from that contained or incorporated by reference in the accompanying prospectus. We are not, and the underwriters are not, making an offer to sell these securities in any jurisdiction where the offer or sale is not permitted. You

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should assume that the information contained in this prospectus supplement is accurate only as of the date of this prospectus supplement, regardless of the time of delivery of this prospectus supplement or of any sale of common stock. If any information varies between this prospectus supplement and the accompanying prospectus, you should rely on the information in this prospectus supplement.

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References in this prospectus supplement to "we," "us," "our company," "the Company," or "Universal Display Corporation" mean Universal Display Corporation and its subsidiary, and their predecessor entities for the applicable periods, considered as a single enterprise. This prospectus supplement contains references to a number of trademarks which are our registered trademarks or trademarks for which we have pending registration applications or common law rights. These include, but are not limited to, FOLED(TM), OVPD(TM), P2OLED(TM), PHOLED(TM) and TOLED(TM). References to the Notes to Consolidated Financial Statements refer to the Notes to Consolidated Financial Statements included in the consolidated financial statements included in our annual report on Form 10-K for the year ended December 31, 2003.

### PROSPECTUS SUPPLEMENT SUMMARY

This summary only highlights the more detailed information appearing elsewhere in this prospectus supplement and incorporated by reference in the accompanying prospectus. As this is a summary, it may not contain all the information that is important to you. You should read carefully this entire prospectus supplement and the accompanying prospectus, including the documents incorporated by reference in the accompanying prospectus, before you decide to invest in our common stock. Unless otherwise indicated, all information in this prospectus supplement assumes no exercise of the underwriters' over-allotment option.

This prospectus supplement and the accompanying prospectus contain forward-looking statements. You should read the explanation of the qualifications and limitations on such forward-looking statements on page 2 of the accompanying prospectus. You should also carefully consider the various risk factors beginning on page S-5 of this prospectus supplement, which risk factors may cause our actual results to differ materially from those indicated by such forward-looking statements. You should not place undue reliance on our forward-looking statements.

#### Our Company

We are a leader in the research, development and commercialization of organic light emitting diode, or OLED, technologies for use in a variety of flat panel display and other applications. OLEDs are thin, light-weight and power efficient devices, highly suitable for use in portable, full-color display applications. We are focused on licensing our proprietary technologies and materials to leading display manufacturers on a non-exclusive basis. We believe this business model allows us to concentrate on our core strengths of technology development and innovation, while providing significant operating leverage. During the second half of 2003, we recognized our first commercial chemical sales and license fee revenues. We are currently selling one of our proprietary OLED materials to Tohoku Pioneer Corporation, have established a license agreement with DuPont Displays, Inc. and have entered into technology development and evaluation agreements with AU Optronics Corporation, Samsung SDI Co., Sony Corporation and Toyota Industries Corporation.

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Initial applications for OLED displays are small- and medium-sized flat panel displays in a wide variety of portable consumer electronics devices, including mobile phones, personal digital assistants, or PDAs, cameras, camcorders and electronic games. According to DisplaySearch, an independent market research firm tracking the flat panel display industry, the market for flat panel displays, which is currently dominated by liquid crystal displays, or LCDs, is expected to reach an estimated \$71.6 billion in 2007. We believe OLED displays will capture a share of the growing flat panel display market because they offer potential advantages over competing technologies with respect to brightness, power efficiency, viewing angle, video response time and manufacturing cost. According to DisplaySearch, the OLED display market is expected to experience significant growth with revenues increasing from an estimated \$263 million in 2003 to an estimated \$3.5 billion by 2008. We believe that larger display applications, such as laptop computers, desktop computer monitors and televisions, also represent a significant opportunity for OLED displays given the potential advantages of OLED technologies.

Our strategy is to further develop and license our proprietary OLED technologies to display manufacturers for use in small, medium and large consumer electronic devices. Our key proprietary technology, phosphorescent OLEDs, or PHOLEDs, has demonstrated the ability to provide up to four times the power efficiency of other types of OLEDs and traditional LCDs. We also are conducting research and development work directed towards both improving our existing PHOLED technologies and materials and further developing our proprietary OLED technologies such as transparent OLEDs and flexible OLEDs. Our focus on next-generation technologies is designed to enable us to continue our position as a leading provider of OLED technologies.

We believe that our technology leadership and intellectual property position will enable us to share in the revenues from OLED displays as they enter the mainstream consumer electronics market. Through our internal research and development efforts and our relationships with world-class partners such as Princeton University, the University of Southern California and PPG Industries, Inc., we have established a significant portfolio of OLED technologies and associated intellectual property rights. We currently own, exclusively

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license or have the sole right to sublicense more than 500 patents issued and pending worldwide. In addition, our management team has assembled a Scientific Advisory Board that includes some of the leading researchers in the OLED industry, which has enhanced our reputation and our competitive profile.

### Corporate Information

Our corporation was organized under the laws of the Commonwealth of Pennsylvania in April 1985. Our current business was commenced in June 1994 by a New Jersey corporation that has since changed its name to UDC, Inc. UDC, Inc. now functions as an operating subsidiary of ours and has overlapping officers and directors. Our principal executive offices are located at 375 Phillips Boulevard, Ewing, New Jersey 08618 and our telephone number is (609) 671-0980. Our website is located at [www.universaldisplay.com](http://www.universaldisplay.com). The information contained on our website is not a part of this prospectus supplement or the accompanying prospectus.

The Offering

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Shares of common stock offered by us.....	2,900,000 shares
Shares of common stock to be outstanding after this offering....	27,681,720 shares
Use of proceeds.....	We currently intend to use the proceeds for working capital and other purposes, including possible acquisitions of assets, as well as businesses under the heading "Use of Proceeds" in the prospectus supplement for more information.
Nasdaq National Market symbol.....	PANL
Philadelphia Stock Exchange symbol.....	PNL

The number of shares of our common stock to be outstanding after this offering is based on the number of shares outstanding as of February 20, 2004. This number excludes:

- o 3,134,444 shares of our common stock issuable upon the exercise of options outstanding as of that date at a weighted average exercise price of \$8.05 per share;
- o an aggregate of 1,052,101 shares of our common stock reserved as of that date for future issuance under our equity compensation plan;
- o 5,137,313 shares of our common stock issuable upon the exercise of warrants outstanding as of that date at a weighted average exercise price of \$9.81 per share; and
- o 418,916 shares of our common stock issuable upon the conversion of 300,000 shares of our Series B Convertible Preferred Stock, liquidation value \$21.48 per share, at a weighted average conversion price of \$15.38 per share, including 75,000 shares of Series B Convertible Preferred Stock for which the conversion price is subject to adjustment in the manner described in Note 9 of the Notes to Consolidated Financial Statements.

Except as otherwise noted, all information in this prospectus supplement reflects an assumed public offering price of \$14.72 per share.

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### Summary Consolidated Financial Data

The following table summarizes our consolidated financial data for the periods, and as of the dates, indicated. You should read the summary consolidated financial data set forth below in conjunction with "Management's Discussion and Analysis of Financial Condition and Results of Operations" appearing elsewhere in this prospectus supplement and with our consolidated financial statements and related notes incorporated by reference in the accompanying prospectus. The historical and as adjusted results presented here are not necessarily indicative of future results.

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Consolidated Statement of Operations Data:

Revenue:

Contract research.....	\$ 1,058,
Development chemicals.....	194,
Commercial chemicals.....	
License fees.....	
Technology development revenue.....	

Total revenue..... \$ 1,252,

Operating expenses:

Cost of chemicals sold.....	
Research and development.....	12,310,
General and administrative.....	3,915,
Royalty expense.....	75,

Total operating expenses..... 16,300,

Operating loss.....	(15,047,
Interest income.....	540,
Interest expense (1).....	(1,848,
Debt conversion and extinguishment expense (2).....	
Other revenue.....	

Net loss..... \$ (16,356,  
Deemed dividends to preferred shareholders (3)..... (2,517,

Net loss applicable to common shareholders..... \$ (18,873,  
Basic and diluted net loss per common share..... \$ (1

Weighted average shares used in computing basic and diluted net loss per common shares..... 16,994,

Other Operating Data:

Net cash used in operating activities.....	\$ 7,702,
Capital expenditures.....	1,790,

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- Interest expense includes non-cash expense of \$1,015,418 for 2001 and \$1,819,989 for 2002 relating to the amortization of an original issue discount and non-cash interest expense of \$674,283 for 2001 and \$1,212,697 for 2002 relating to the beneficial conversion feature of our convertible promissory notes (the Notes) issued in an original principal amount of \$15,000,000 in August 2001.
  - Debt conversion and extinguishment expense for 2002 reflects the non-cash expense we incurred in connection with the conversion of \$7,000,002 in principal amount of the Notes and our repayment of the remaining outstanding balance of the Notes.
  - Deemed dividends to preferred shareholders are non-cash charges that result from beneficial conversion features and contingent beneficial conversion features of our convertible preferred stock, adjustments to certain warrants containing anti-dilution provisions based on our registered direct offering in 2003, and, for 2001, non-cash charges associated with our issuance of shares of our Series C-1 Preferred Stock in exchange for shares of our Series C Preferred Stock and related revisions to the terms of associated warrants.

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	As of December 31, 2003	
	Actual	As Adjusted (4)
		(unaudited)
Consolidated Balance Sheet Data:		
Cash and cash equivalents .....	\$14,070,207	\$53,871,927
Short-term investments .....	12,811,704	12,811,704
Long-term investments (5) .....	3,255,574	3,255,574
	-----	-----
Total cash, cash equivalents and investments	30,137,485	69,939,205
Working capital .....	23,679,705	63,481,425
Acquired technology, net .....	11,404,703	11,404,703
Total assets .....	46,201,646	86,003,366
Current liabilities .....	4,194,776	4,194,776
Total debt .....	--	--
Shareholders' equity .....	38,906,870	78,708,590

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- (4) The as adjusted column in the consolidated balance sheet data gives effect to the sale of 2,900,000 shares of our common stock in this offering at an assumed offering price of \$14.72 per share and after deducting underwriting discounts and commissions and estimated offering expenses.
- (5) Long-term investments consist of certificates of deposit and other liquid debt instruments purchased with an original maturity of more than one year.

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RISK FACTORS

An investment in our securities involves a high degree of risk. Before purchasing our common stock, you should carefully consider the risks described below in this section and the risks described in the documents incorporated by reference in the accompanying prospectus. The risks set forth below in this section replace and supersede in their entirety the risks set forth beginning on page 4 of the accompanying prospectus. You should not purchase our securities if you cannot afford the loss of your entire investment.

Risks Relating to Our Business and Industry

We do not expect to be profitable in the foreseeable future, and may never be profitable.

Since inception, we have generated limited revenues while incurring significant losses. We expect to incur losses for the foreseeable future and until such time, if ever, as we are able to achieve sufficient levels of revenue from the commercial exploitation of our OLED technologies and materials to support our operations. You should note, however, that:

- o OLED technologies may never become commercially viable;
- o markets for flat panel displays utilizing OLED technologies may be

limited; and

- o we may never generate sufficient revenues from the commercial exploitation of our OLED technologies and materials to become profitable.

Even if we find commercially viable applications for our OLED technologies and materials, we may never recover our research and development expenses.

If we do not receive additional financing in the future, we might not be able to continue the research, development and commercialization of our OLED technologies and materials.

Our capital requirements have been and will continue to be significant. Substantial additional funds will be required in the future for research, development and commercialization of our OLED technologies and materials, to obtain and maintain patents and other intellectual property rights in these technologies and materials, and for working capital and other purposes, the timing and amount of which are difficult to ascertain. Our cash on hand may not be sufficient to meet all of our future needs. When we need additional funds, such funds may not be available on commercially reasonable terms or at all. If we cannot obtain more money when needed, our business might fail. Additionally, if we attempt to raise money in an offering of shares of our common stock, preferred stock, warrants or depositary shares, or if we engage in acquisitions involving the issuance of such securities, the issuance of these shares will dilute our then-existing shareholders.

If our OLED technologies and materials are not feasible for broad-based product applications, we may never generate revenues sufficient to support ongoing operations.

Before display manufacturers will agree to utilize our OLED technologies and materials for wide-scale commercial production, they will likely require us to demonstrate to their satisfaction that our OLED technologies and materials are feasible for broad-based product applications. This, in turn, will require substantial advances in our research and development efforts in a number of areas, including:

- o device reliability;
- o the development of long-lived OLED materials for full color OLED displays; and
- o issues related to scalability and cost-effective fabrication technologies for product applications.

Our efforts may never demonstrate the feasibility of our OLED technologies and materials for broad-based product applications.

Our research and development efforts remain subject to all of the risks associated with the development of new products based on emerging and innovative technologies, including, without limitation, unanticipated

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technical or other problems and the possible insufficiency of funds for completing development of these products. Technical problems may result in delays and cause us to incur additional expenses that would increase our losses. If we cannot complete research and development of our OLED technologies and materials successfully, or if we experience delays in completing research and development of our OLED technologies and materials for



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use in potential commercial applications, particularly after incurring significant expenditures, our business may fail.

Even if our OLED technologies are technically feasible, they may not be adopted by display manufacturers.

The potential size, timing and viability of market opportunities targeted by us are uncertain at this time. Market acceptance of our OLED technologies will depend, in part, upon these technologies providing benefits comparable to cathode ray tube, or CRT, display and LCD technologies (the current standard display technologies) at an appropriate cost, and the adoption of these technologies by consumers, neither of which has been achieved. Also, there may be a number of additional technologies that display manufacturers need to utilize to be used in conjunction with our OLED technologies in order to bring OLED displays and products containing them to the market. Many potential licensees of our OLED technologies manufacture flat panel displays utilizing competing technologies, and may, therefore, be reluctant to redesign their products or manufacturing processes to incorporate our OLED technologies. Moreover, even if our OLED technologies are a viable alternative to competing technologies, if additional technologies are required to be used in conjunction with our OLED technologies to bring OLED displays and products containing them to the market and display manufacturers are unable to obtain access to these technologies, they may not utilize our OLED technologies.

There are numerous potential alternatives to OLEDs for flat panel displays, which may limit our ability to commercialize our OLED technologies and materials.

The flat panel display market is currently, and will likely continue to be for some time, dominated by displays based on LCD technology. Numerous companies are making substantial investments in, and conducting research to improve characteristics of, LCDs. Several other flat panel display technologies have been, or are being, developed, including technologies for the production of field emission, inorganic electroluminescence, gas plasma and vacuum fluorescent displays. Advances in LCD technology or any of these other technologies may overcome their current limitations and permit them to become the leading technologies for flat panel displays, either of which could limit the potential market for flat panel displays utilizing our OLED technologies and materials. This, in turn, would cause display manufacturers to avoid entering into commercial relationships with us, or to terminate or not renew their existing relationships with us.

Other OLED technologies may be more successful than ours.

Our competitors have developed OLED technologies that differ from or compete with our OLED technologies. These competing OLED technologies entered the marketplace prior to ours and may become entrenched in the flat panel industry before our OLED technologies have a chance to become widely utilized. Moreover, our competitors may succeed in developing new OLED technologies that are more cost-effective or have fewer display limitations than our OLED technologies. If our OLED technologies, and particularly our phosphorescent OLED technology, are unable to capture a substantial portion of the OLED display market, our business strategy may fail.

Many of our competitors have greater resources, and it may be difficult to compete against them.

The flat panel display industry is characterized by intense competition. Many of our competitors have better name recognition and greater financial, technical, marketing, personnel and research capabilities than us. Because of these differences, we may never be able to compete successfully in the OLED display market.

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The flat panel display industry has historically experienced significant downturns, which may adversely affect the demand for and pricing of our OLED technologies and materials.

The flat panel display industry has experienced significant periodic downturns, often in connection with, or in anticipation of, declines in general economic conditions. These downturns have been characterized by lower product demand, production overcapacity and erosion of average selling prices. Our business strategy is dependent on display manufacturers building and selling displays that incorporate our OLED technologies and materials. Industry-wide fluctuations and downturns in the demand for flat panel displays, and OLED displays in particular, could cause significant harm to our business.

If our research partners fail to make advances in their research, or if they terminate or elect not to renew their relationships with us, we might not succeed in commercializing our OLED technologies and materials.

Research and development of commercially viable applications for our OLED technologies and materials depend substantially on the success of the work conducted by our research partners. We cannot be certain that our research partners will make additional advances in the research and development of these technologies and materials. Moreover, although we fund OLED technology research, the scope of and technical aspects of this research and the resources and efforts directed to this research are in large part subject to the control of our research partners.

Our most significant research and development relationships are with Princeton University and the University of Southern California. Our Research Agreement with Princeton University expires in July 2007 and both this agreement and our Amended License Agreement with Princeton University and the University of Southern California (the agreement under which we license our key OLED technology patents) can be terminated for various reasons. For example, the Research Agreement provides that if Dr. Stephen R. Forrest, the principal investigator for our research program with Princeton University, is unavailable to continue to serve in this capacity, because he is no longer associated with Princeton University or for any other reason, and a successor acceptable to both us and Princeton University is not available, Princeton University has the right to terminate the Research Agreement without impacting the Amended License Agreement. Termination of the Research Agreement or the Amended License Agreement would materially and adversely affect our ability to research, develop and commercialize our OLED technologies and materials.

If we cannot form and maintain lasting business relationships with OLED display manufacturers, our business strategy will fail.

Our business strategy ultimately depends upon our development and maintenance of commercial licensing and material supply relationships with high-volume manufacturers of OLED displays. As of December 31, 2003, we had entered into only two such relationships, one with Dupont Displays, Inc. and one with Tohoku Pioneer Corporation. All of our other relationships with display manufacturers currently are limited to technology development and the evaluation of our OLED technologies and materials for possible use in commercial production. Some or all of these relationships may not succeed or, even if they are successful, may not result in the display manufacturers entering into commercial licensing and material supply relationships with us.

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Under our existing technology development and evaluation agreements, we are working with display manufacturers to incorporate our technologies into their products for the commercial production of OLED displays. However, these technology development and evaluation agreements typically last for limited periods of time, such that our relationships with the display manufacturers will expire unless they continually are renewed. The display manufacturers may not agree to renew their relationships with us on a continuing basis. In addition, we regularly continue working with display manufacturers evaluating our OLED technologies and materials after our existing agreements with them have expired while we are attempting to negotiate contract extensions or new agreements with them. Should our relationships with the display manufacturers not continue or be renewed, our business would suffer.

Our ability to enter into additional commercial licensing and material supply relationships, or to maintain our existing technology development and evaluation relationships, may require us to make financial or other

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commitments. We might not be able, for financial or other reasons, to enter into or continue these relationships on commercially acceptable terms, or at all. Failure to do so would have a material adverse effect on us.

We rely solely on PPG Industries to manufacture the OLED materials we use and sell to display manufacturers.

Our business prospects depend significantly on our ability to obtain proprietary OLED materials for our own use and for sale to display manufacturers. Our current Development and License Agreement with PPG Industries, Inc. provides us with a source for these materials for research, development and evaluation purposes, and our current Supply Agreement with PPG Industries provides us with a source for these materials for commercial purposes. However, the Development and License Agreement expires at the end of 2005 and the Supply Agreement expires at the end of 2007. Our inability to continue obtaining these OLED materials from PPG Industries or another source would have a material adverse effect on our revenues from sales of these materials, as well as on our ability to perform research and development work and to support those display manufacturers currently evaluating our OLED technologies and materials for possible commercial use.

If we cannot obtain and maintain appropriate patent and other intellectual property rights protection for our OLED technologies and materials, our business will suffer.

The value of our OLED technologies and materials is dependent on our ability to secure and maintain appropriate patent and other intellectual property rights protection. Although we own or license many patents respecting our OLED technologies and materials that have already been issued, there can be no assurance that additional patents applied for will be obtained, or that any of these patents, once issued, will afford commercially significant protection for our OLED technologies and materials, or will be found valid if challenged. Moreover, we have not obtained patent protection for some of our OLED technologies and materials in all foreign countries in which OLED displays or materials might be manufactured or sold. In any event, the patent laws of other countries may differ from those of the United States as to the patentability of our OLED technologies and materials and the degree of protection afforded.

We may become engaged in litigation to protect or enforce our patent and other intellectual property rights, or in International Trade Commission

proceedings to abate the importation of goods that would compete unfairly with those of our licensees. In addition, we may have to participate in interference or reexamination proceedings before the U.S. Patent and Trademark Office, or in opposition, nullity or other proceedings before foreign patent offices, with respect to our patents or patent applications. All of these actions would place our patents and other intellectual property rights at risk and may result in substantial costs to us as well as a diversion of management attention. Moreover, if successful, these actions could result in the loss of patent or other intellectual property rights protection for the key OLED technologies and materials on which our business depends.

If our OLED technologies or materials are found to infringe the rights of others, we may not be able to commercially license or sell them.

Other companies and institutions may independently develop OLED technologies and materials that are equivalent or superior to ours, and may obtain patent or similar rights with respect to these technologies. There are a number of other companies and organizations that have been issued patents and are filing additional patent applications relating to OLED technologies and materials, including Eastman Kodak Company, Fuji Film Co., Ltd., Canon, Inc., Pioneer Corporation, Semiconductor Energy Laboratories Co. and Mitsubishi Chemical Corporation, all of whom have patent rights related to OLED technologies and materials. There can be no assurance that the utilization of our OLED technologies or the sale of our OLED materials, including technologies and materials developed by or licensed from Princeton University, the University of Southern California, PPG Industries or Motorola, Inc., will not infringe on the patent or other intellectual property rights of others. In this event, we or our partners may be required to obtain licenses, pay damages, modify our products or methods of operation, or be prohibited from making, using, selling or offering to sell some or all of our OLED materials or products incorporating our OLED technologies. We also might not

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have the financial or other resources necessary to enforce or defend a patent infringement action, and the licensors of our licensed patents might not enforce or defend such an action in a timely manner. If our OLED materials or products incorporating our OLED technologies are found to infringe on the patent or other intellectual property rights of others, it could have a material adverse effect on us by limiting our ability to license our OLED technologies or sell our OLED materials to display manufacturers.

The U.S. government has rights to our OLED technologies that might prevent us from realizing the benefits of these technologies.

The U.S. government, through various government agencies, has provided and continues to provide funding to us, Princeton University and the University of Southern California for research activities related to certain aspects of our OLED technologies. Because we have been provided with this funding, the government has rights to these OLED technologies that could restrict our ability to market them to the government for military and other applications, or to third parties for commercial applications. Moreover, if the government determines that we have not taken effective steps to achieve practical application of these OLED technologies in any field of use in a reasonable time, the government could require us to grant licenses to other parties in that field of use. Any of these occurrences would limit our ability to obtain the full benefits of our OLED technologies.

If we cannot keep our key employees or hire other talented persons as we grow, our business might not succeed.

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Our performance is substantially dependent on the continued services of senior management and other key personnel, and on our ability to offer competitive salaries and benefits to our employees. We do not have employment agreements with any of our management or other key personnel. Additionally, competition for highly skilled technical, managerial and other personnel is intense. We might not be able to attract, hire, train, retain and motivate the highly skilled managers and employees we need to be successful. If we fail to attract and retain the necessary technical and managerial personnel, our business will suffer and might fail.

We can issue shares of preferred stock that may adversely affect your rights as a shareholder of our common stock.

Our Articles of Incorporation authorize us to issue up to 5,000,000 shares of preferred stock with designations, rights and preferences determined from time-to-time by our Board of Directors. Accordingly, our Board of Directors is empowered, without shareholder approval, to issue preferred stock with dividend, liquidation, conversion, voting or other rights superior to those of shareholders of our common stock. For example, an issuance of shares of preferred stock could:

- o adversely affect the voting power of the shareholders of our common stock;
- o make it more difficult for a third party to gain control of us;
- o discourage bids for our common stock at a premium; or
- o otherwise adversely affect the market price of our common stock.

Our Board of Directors has designated and issued two series of preferred stock that were outstanding as of December 31, 2003: (a) 200,000 shares of Series A Nonconvertible Preferred Stock, all of which are held by an entity controlled by members of the family of Sherwin Seligsohn, our Chairman of the Board and Chief Executive Officer; and (b) 300,000 shares of Series B Convertible Preferred Stock that are held by Motorola. As of December 31, 2003, 225,000 shares of the Series B Convertible Preferred Stock were convertible into 343,916 shares of our common stock. The remaining 75,000 shares of the Series B Convertible Preferred Stock will vest and all shares of Series B Convertible Preferred Stock will automatically convert into shares of our common stock in September 2004. We may issue additional shares of authorized preferred stock at any time in the future.

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If the price of our common stock goes down, we may have to issue more shares than are presently anticipated to be issued under our agreement with PPG Industries.

Under our Development and License Agreement with PPG Industries, we are required to issue to PPG Industries shares of our common stock for services rendered by it. If, at the time of issuance, the price of our common stock has declined materially since the date of the Development and License Agreement, we would be required to issue to PPG Industries more shares of our common stock than were initially anticipated. This increase in the number of shares available for public sale could cause people to sell our common stock, including in short sales, which could drive down the price of our common stock, thus reducing its value and perhaps hindering our ability to raise additional funds in the future. In addition, such an increase in the number of

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outstanding shares of our common stock would further dilute existing holders of this stock.

Our executive officers and directors own a large percentage of our common stock and could exert significant influence over matters requiring shareholder approval, including takeover attempts.

Our executive officers and directors, their respective affiliates and the adult children of Sherwin Seligsohn, our Chairman of the Board and Chief Executive Officer, beneficially own as of February 20, 2004, approximately 25.5% of the outstanding shares of our common stock. Moreover, Pine Ridge Financial Inc. and First Investors Holding Co., Inc., as successor to Strong River Investments, Inc., assigned to our management their rights to vote the shares of our common stock they received or are entitled to receive upon conversion of warrants, notes and preferred stock issued in an August 2001 private placement transaction, of which warrants to purchase 744,452 shares remain outstanding as of February 20, 2004. Accordingly, these shareholders and members of management may, as a practical matter, be able to exert significant influence over matters requiring approval by our shareholders, including the election of directors and the approval of mergers or other business combinations. This concentration also could have the effect of delaying or preventing a change in control of us.

### Risks Relating to this Offering

The market price of our common stock might be highly volatile.

The market price of our common stock might be highly volatile, as has been the case with our common stock in the past, as well as the securities of many companies, particularly other small and emerging-growth companies. We have included a section in this prospectus supplement entitled "Price Range of Common Stock" that contains a table indicating the high and low closing prices of our common stock as reported on the Nasdaq National Market for the periods indicated. Factors such as the following may have a significant impact on the market price of our common stock in the future:

- o our expenses and operating results;
- o announcements by us or our competitors of technological developments, new product applications or license arrangements; and
- o other factors affecting the flat panel display and related industries in general.

The issuance of additional shares of our common stock could drive down the price of our stock.

The price of our common stock can be expected to decrease if:

- o other shares of our common stock that are currently subject to restriction on sale become freely salable, whether through an effective registration statement or based on Rule 144 under the Securities Act of 1933; or
- o we issue additional shares of our common stock that might be or become freely salable, including shares that would be issued upon conversion of our preferred stock or the exercise of outstanding warrants and options.

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You will suffer an immediate and substantial dilution in the net tangible book value of the common stock you purchase in this offering.

The public offering price in this offering is expected to be substantially higher than the pro forma net tangible book value per share of our outstanding common stock immediately after this offering. Accordingly, based on an assumed public offering price of \$14.72 per share, purchasers of common stock in this offering will experience immediate and substantial dilution of approximately \$12.24 per share in the pro forma net tangible book value of the common stock as of December 31, 2003.

Management will have broad discretion as to the use of the proceeds from this offering, and we may not use the proceeds effectively.

We have not designated the amount of net proceeds we will use for any particular purpose. Accordingly, our management will have broad discretion as to the application of the net proceeds and could use them for purposes other than those contemplated at the time of this offering. Our shareholders may not agree with the manner in which our management chooses to allocate and spend the net proceeds. Moreover, our management may use the net proceeds for corporate purposes that may not lead to profitability or increase the market value of our common stock.

The exercise price of and number of shares issuable under certain warrants to purchase shares of our common stock will be reduced following the issuance of our common stock in this offering.

Certain outstanding warrants to purchase shares of our common stock contain "weighted average" anti-dilution protection, pursuant to which the exercise price of the warrants is reduced, and the number of shares issuable is increased, upon our issuance of shares of common stock at a purchase price per share less than the then-applicable per share exercise price of each respective warrant. The following table contains certain information regarding adjustments to the exercise price and number of shares issuable under the warrants that will be affected by this offering:

Date of Issuance of Warrant	Exercise Price	Number of Shares Issuable Upon Exercise of Warrant	Exercise Price
September 29, 2000 .....	\$17.66	183,456	\$17.66

(1) Shows adjustments relating to the sale of 2,900,000 shares of our common stock in this offering at an assumed public offering price per share of \$14.72.

Because we do not intend to pay dividends, shareholders will benefit from an investment in our common stock only if it appreciates in value.

We have never declared or paid any cash dividends on our common stock. We currently intend to retain our future earnings, if any, to finance further research and development and do not expect to pay any cash dividends in the foreseeable future. As a result, the success of an investment in our common stock will depend upon any future appreciation in its value. There is no guarantee that our common stock will appreciate in value or even maintain the

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price at which shareholders have purchased their shares.

Our past use of Arthur Andersen LLP as our independent auditor limits the ability of shareholders to seek potential recoveries from them related to their work.

On July 30, 2002, we announced that we had appointed KPMG LLP to replace Arthur Andersen LLP (Arthur Andersen) as our independent public auditor. Our consolidated financial statements as of and for each of the years ended December 31, 1999 through 2001 were audited by Arthur Andersen. After reasonable efforts, we were unable to obtain Arthur Andersen's consent to the incorporation by reference into the registration statement, of which this prospectus supplement is a part, of its report with respect to our financial statements. Under these circumstances, Rule 437a under the Securities Act of 1933 allowed us to file the registration statement without a written consent from Arthur Andersen.

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The absence of this consent may limit recovery on certain claims by investors in an offering made using this prospectus supplement. In particular, and without limitation, investors will not be able to assert claims against Arthur Andersen under Section 11 of the Securities Act of 1933. In addition, the ability of Arthur Andersen to satisfy any claims (including claims arising from Arthur Andersen's provision of auditing and other services to us) will be limited as a practical matter due to events regarding Arthur Andersen. This means that if an investor in an offering made using this prospectus supplement were to assert a claim under Section 11 of the Securities Act relating to its investment, that investor would not be able to seek damages from Arthur Andersen. Thus, as compared to a hypothetical investor in an offering by another company whose inclusion of financial statements in its annual report was consented to by that company's independent auditor, an investor in an offering made using this prospectus supplement would have fewer alternatives in seeking damages relating to its investment.

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### USE OF PROCEEDS

We estimate that the net proceeds to us from the sale of our common stock in this offering will be approximately \$39.8 million, or approximately \$45.8 million assuming the underwriters' over-allotment option is exercised in full, after deducting the underwriting discounts and commissions and estimated offering expenses payable by us in connection with this offering.

We currently intend to use the net proceeds we receive from the sale of our common stock in this offering for working capital and other general corporate purposes, including possible acquisitions of technologies and other assets, as well as businesses. We currently have no such acquisitions planned. Pending application of the net proceeds, we will invest these proceeds in government securities and other short-term, investment-grade, interest bearing securities.

### DILUTION

Our net tangible book value as of December 31, 2003 was approximately



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\$27,502,167, or approximately \$1.14 per share of common stock. Net tangible book value per share is determined by dividing our net tangible book value, which consists of tangible assets less total liabilities, by the number of shares of common stock outstanding on that date. Without taking into account any other changes in the net tangible book value after December 31, 2003, other than to give effect to our receipt of the estimated net proceeds from the sale of 2,900,000 shares of our common stock in this offering at an assumed public offering price of \$14.72 per share, less the underwriting discounts and commissions payable by us and our estimated offering expenses, our net tangible book value as of December 31, 2003, after giving effect to the items above would have been approximately \$67.3 million, or \$2.48 per share. This represents an immediate increase in the net tangible book value of \$1.34 per share to existing shareholders and an immediate dilution of \$12.24 per share to new investors. The following table illustrates this per share dilution:

Assumed public offering price per share .....		\$14.72
		-----
Net tangible book value per share as of December 31, 2003..	\$1.14	
Increase in net tangible book value per share attributable this offering.....	1.34	
		-----
Pro forma net tangible book value per share after giving effect to this offering.....		2.48
		-----
Dilution per share to new investors .....		\$12.24
		=====

This table is based on the number of outstanding shares as of December 31, 2003, and does not include the following:

- o 3,134,444 shares of our common stock issuable upon the exercise of options outstanding as of that date at a weighted average exercise price of \$8.05 per share;
- o an aggregate of 1,052,101 shares of our common stock reserved as of that date for future issuance under our equity compensation plan;
- o 5,137,313 shares of our common stock issuable upon the exercise of warrants outstanding as of that date at a weighted average exercise price of \$9.81 per share; and
- o 418,916 shares of our common stock issuable upon the conversion of 300,000 shares of our Series B Convertible Preferred Stock, liquidation value \$21.48 per share, at a weighted average conversion price of \$15.38 per share, including 75,000 shares of Series B Convertible Preferred Stock for which the conversion price is subject to adjustment in the manner described in Note 9 of the Notes to Consolidated Financial Statements.

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CAPITALIZATION

The following table sets forth our cash and cash equivalents and

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capitalization as of December 31, 2003:

- o on an actual basis; and
- o on an as adjusted basis to give effect to our receipt of an estimated \$39.8 million of net proceeds from the sale of our common stock pursuant to this offering, after deducting underwriting discounts and commissions and estimated offering expenses.

This table should be read in conjunction with the financial statements and the related notes incorporated by reference in the accompanying prospectus.

	As of December 31, 2003	
	Actual	As Adjusted
		(unaudited)
Cash and cash equivalents .....	\$ 14,070,207	\$ 53,871,927
Short-term investments .....	12,811,704	12,811,704
Long-term investments (1) .....	3,255,574	3,255,574
	-----	-----
Total cash, cash equivalents and investments..	\$ 30,137,485	\$ 69,939,205
	=====	=====
Long-term debt .....	\$ --	\$ --
Shareholders' equity:		
Preferred stock, par value \$0.01 per share, 5,000,000 shares authorized; 200,000 shares of Series A Nonconvertible Preferred Stock authorized, issued and outstanding (liquidation value of \$7.50 per share or \$1,500,000); 300,000 shares of Series B Convertible Preferred Stock authorized, issued and outstanding (liquidation value of \$21.48 per share or \$6,444,000); 5,000 shares of Series C-1 Convertible Preferred Stock authorized and none issued or outstanding; 5,000 shares of Series D Convertible Preferred Stock authorized and none issued or outstanding.....	\$ 5,000	\$ 5,000
Common stock, par value \$0.01 per share, 50,000,000 shares authorized; 24,196,765 shares issued and outstanding, actual; and 27,096,765 shares issued and outstanding, as adjusted.....	241,968	270,968
Additional paid-in-capital .....	137,160,751	176,933,471
Accumulated other comprehensive loss .....	(38,837)	(38,837)
Deficit accumulated during development stage ....	(98,462,012)	(98,462,012)
	-----	-----
Total shareholders' equity .....	38,906,870	78,708,590
	-----	-----
Total capitalization .....	\$ 38,906,870	\$ 78,708,590
	=====	=====

(1) Long-term investments consist of certificates of deposit and other liquid debt instruments purchased with an original maturity of more than one year.

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## PRICE RANGE OF COMMON STOCK

Our common stock is quoted on the Nasdaq National Market under the symbol "PANL" and listed on the Philadelphia Stock Exchange under the symbol "PNL." The following table sets forth, for the periods indicated, the high and low closing prices of our common stock as reported on the Nasdaq National Market since January 1, 2002:

	High -----	Low -----
2002		
First Quarter .....	\$11.78	\$ 8.17
Second Quarter .....	11.80	8.30
Third Quarter .....	8.30	4.95
Fourth Quarter .....	11.60	5.76
2003		
First Quarter .....	\$ 8.70	\$ 6.33
Second Quarter .....	10.80	8.22
Third Quarter .....	10.74	8.17
Fourth Quarter .....	15.45	10.30
2004		
First Quarter (through February 26, 2004) .....	\$18.00	\$13.65

## DIVIDEND POLICY

We have never declared or paid cash dividends on our common stock. We currently intend to retain any future earnings for the operation and expansion of our business. We do not anticipate declaring or paying cash dividends on our common stock in the foreseeable future. Any future payment of cash dividends on our common stock will be at the discretion of our Board of Directors and will depend upon our results of operations, earnings, capital requirements, contractual restrictions and other factors deemed relevant by our Board of Directors.

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## SELECTED CONSOLIDATED FINANCIAL DATA

The following table summarizes our selected consolidated financial data for the periods, and as of the dates, indicated. You should read the selected consolidated financial data set forth below in conjunction with "Management's Discussion and Analysis of Financial Condition and Results of Operations" appearing elsewhere in this prospectus supplement and with our consolidated financial statements and related notes incorporated by reference in the accompanying prospectus. The historical results presented here are not necessarily indicative of future results.

	----- 2001 -----
Consolidated Statement of Operations Data:	
Revenue:	
Contract research.....	\$ 1,058,
Development chemicals.....	194,
Commercial chemicals.....	
License fees.....	
Technology development revenue.....	
Total revenue.....	\$ 1,252,
Operating expenses:	
Cost of chemicals sold.....	
Research and development.....	12,310,
General and administrative.....	3,915,
Royalty expense.....	75,
Total operating expenses.....	16,300,
Operating loss.....	(15,047,
Interest income.....	540,
Interest expense (1).....	(1,848,
Debt conversion and extinguishment expense (2).....	
Other revenue.....	
Net loss.....	\$ (16,356,
Deemed dividends to preferred shareholders (3).....	(2,517,
Net loss applicable to common shareholders.....	\$ (18,873,
Basic and diluted net loss per common share.....	\$ (1,
Weighted average shares used in computing basic and diluted net loss per common shares.....	16,994,
Other Operating Data:	
Net cash used in operating activities.....	\$ 7,702,
Capital expenditures.....	1,790,

- 
- (1) Interest expense includes non-cash expense of \$1,015,418 for 2001 and \$1,819,989 for 2002 relating to the amortization of an original issue discount and non-cash interest expense of \$674,283 for 2001 and \$1,212,697 for 2002 relating to the beneficial conversion feature of our convertible promissory notes (the Notes) issued in an original principal amount of \$15,000,000 in August 2001.
- (2) Debt conversion and extinguishment expense for 2002 reflects the non-cash expense we incurred in connection with the conversion of \$7,000,002 in principal amount of the Notes and our repayment of the remaining outstanding balance of the Notes.
- (3) Deemed dividends to preferred shareholders are non-cash charges that result from beneficial conversion features and contingent beneficial conversion features of our convertible preferred stock, adjustments to certain warrants containing anti-dilution provisions based on our registered direct offering in 2003, and, for 2001, non-cash charges associated with our issuance of shares of our Series C-1 Preferred Stock

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in exchange for shares of our Series C Preferred Stock and related revisions to the terms of associated warrants.

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	As of December	
	2001	2002
Consolidated Balance Sheet Data:		
Cash and cash equivalents.....	\$ 7,883,132	\$15,905,41
Short-term investments.....	4,516,199	4,662,89
Long-term investments (4).....	--	379,75
Total cash, cash equivalents and investments.....	12,399,331	20,948,06
Working capital.....	17,994,232	18,541,59
Acquired technology, net.....	14,794,847	13,099,77
Total assets.....	48,569,569	39,639,21
Current liabilities (5).....	10,464,188	2,866,75
Total debt (5).....	8,288,239	--
Shareholders' equity.....	38,096,782	33,668,57

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- (4) Long-term investments consist of certificates of deposit and other liquid debt instruments purchased with an original maturity of more than one year.
- (5) As of December 31, 2001, current liabilities include, and total debt consists of, the carrying value of \$15,000,000 aggregate principal amount of the Notes, secured by letters of credit which, in turn, were secured by a like amount of cash, recorded as restricted cash.

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MANAGEMENT'S DISCUSSION AND ANALYSIS OF  
FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with the section entitled "Summary Consolidated Financial Data" in this prospectus supplement and our consolidated financial statements and related notes incorporated by reference into the accompanying prospectus. This discussion and analysis contains forward-looking statements based on our current expectations, assumptions, estimates and projections. These forward-looking statements involve risks and uncertainties. Our actual results could differ materially from those indicated in these forward-looking statements as a result of certain factors, as more fully discussed below and elsewhere in this prospectus supplement, particularly in the section entitled "Risk Factors."

Overview

We are a leader in the research, development and commercialization of organic light emitting diode, or OLED, technologies for use in a variety of

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flat panel display and other applications. Since 1994, we have been exclusively engaged, and expect to continue to be exclusively engaged, in funding and performing research and development activities relating to OLED technologies and materials, and in attempting to commercialize these technologies and materials. Our revenues are generated through contract research, sales of development and commercial chemicals, development and technology evaluation agreements and license fees.

During 2003, we recognized our first commercial chemical sales and license fee revenues. Also in 2003, we entered into an expanded technology development contract with a longstanding partner and recognized revenue from that and other similar contracts. Although these events show the progress we have made in introducing our OLED technologies and materials into the marketplace, there can be no certainty that these trends will continue. We have incurred significant losses since our inception, resulting in an accumulated deficit of \$98,462,012 as of December 31, 2003. Moreover, we expect our losses to continue for the foreseeable future and until such time, if ever, as we are able to achieve, from the commercial licensing of our OLED technologies and the sale of our OLED materials, sustained licensing and chemical sales revenues that are sufficient to support our ongoing research and development activities and other operations.

We anticipate fluctuations in our annual and quarterly results of operations for the foreseeable future due to uncertainty regarding:

- o the timing of our receipt of license fees and fees for future technology development and evaluation;
- o the timing and volume of sales of our OLED materials for both commercial usage and evaluation purposes;
- o the timing and magnitude of expenditures we may incur in connection with our ongoing research and development activities; and
- o the timing and financial consequences of our formation of new business relationships and alliances.

### Critical Accounting Policies and Estimates

The discussion and analysis of our financial condition and results of operations is based on our financial statements, which have been prepared in accordance with accounting principles generally accepted in the United States. The preparation of these financial statements requires us to make estimates and judgments that affect our reported assets and liabilities, revenues and expenses, and other financial information. Actual results may, under different assumptions and conditions, differ significantly from our estimates.

We believe that our accounting policies related to revenue recognition and deferred license fees, valuation of acquired technology and stock-based compensation as described below, are our "critical accounting policies" as contemplated by the Securities and Exchange Commission. These policies are discussed in greater detail below.

#### Revenue Recognition and Deferred License Fees

Contract research revenues represent reimbursements by the U.S. government for all or a portion of the research and development expenses we incur related to our government contracts. Revenues are recognized

proportionally as research and development expenses are incurred or as defined milestones are achieved. In order to ascertain the revenues associated with these contracts for a period, we estimate the proportion of related research and development expenses incurred and whether defined milestones have been achieved. Different estimates would result in different revenues for the period.

We also receive non-refundable advance payments under certain of our development and technology evaluation agreements. These payments are deferred until a license agreement is executed or negotiations have ceased and there is no likelihood of executing a license agreement with the other party. If a license agreement is executed, these revenues will be recorded over the expected life of the licensed technology; otherwise, they will be recorded at the time negotiations with the other party show no further likelihood of success. If we estimate differently the expected life of this licensed technology, reported revenue during the relevant period will differ. To date, no deferred license fees have been recognized as revenue. As of December 31, 2003, \$4,366,667 was recorded as deferred revenue.

#### Valuation of Acquired Technology

We regularly review our acquired OLED technologies for events or changes in circumstances that might indicate the carrying value of these technologies may not be recoverable. Factors considered important that could cause impairment include, among others, significant changes in our anticipated future use of these technologies and our overall business strategy as it pertains to these technologies, particularly in light of patents owned by others in the same field of use. As of December 31, 2003, we believe that no revision of the remaining useful lives or write-down of our acquired technology was required for 2003, nor was such a revision needed in 2002 or 2001. If such a write-down is required in the future, it could be for up to \$11,404,703, the net book value of the acquired technology as of December 31, 2003.

#### Valuation of Stock-Based Compensation

We account for our stock-based compensation (see Note 11 of the Notes to Consolidated Financial Statements) under Accounting Principles Board Opinion (APB) No. 25, "Accounting for Stock Issued to Employees," under which no compensation cost is recognized for options issued to employees at fair market value on the date of grant. In 1995, the Financial Accounting Standards Board issued Statement of Financial Accounting Standards (SFAS) No. 123, "Accounting for Stock-Based Compensation," as amended by SFAS No. 148. SFAS 123 establishes a fair value-based method of accounting for stock-based compensation plans. SFAS 123 requires that a company's financial statements include certain disclosures about stock-based employee compensation arrangements regardless of the method used to account for the plan. We account for our stock option and warrant grants to non-employees in exchange for goods or services in accordance with SFAS 123 and Emerging Issues Task Force No. 96-18 (EITF 96-18). SFAS 123 and EITF 96-18 require that we account for our option and warrant grants to non-employees based on the fair value of the options and warrants granted.

We use the Black-Scholes option-pricing model to estimate the fair value of options we have granted for purposes of making the disclosure required by SFAS 123. In order to calculate the fair value of the options, assumptions are made for certain components of the model, including risk-free interest rate, volatility, expected dividend yield rate and expected option life. Although we use available resources and information when setting these assumptions, changes to the assumptions could cause significant adjustments to the valuation.

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### Results of Operations

Year Ended December 31, 2003 Compared to Year Ended December 31, 2002

We had a net loss attributable to holders of our common stock of \$18,387,507 (or \$0.82 per share) for the year ended December 31, 2003, compared to a net loss attributable to holders of our common stock of \$32,972,680 (or \$1.71 per share) for the year ended December 31, 2002. The decrease in net loss attributable to holders of our common stock was primarily due to:

- o an increase in total revenue, as described below; and

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- o a decrease of non-cash expense relating to the debt conversion and extinguishment of convertible promissory notes we issued in August 2001, and a decrease in non-cash interest expense (see Note 10 of the Notes to Consolidated Financial Statements).

Our revenues were \$6,593,193 for the year ended December 31, 2003, compared to \$2,484,948 for the year ended December 31, 2002. The increase was primarily due to:

- o additional payments under technology development and evaluation agreements and additional purchases of materials by our development partners; and
- o providing OLED material to a customer for its use in the manufacture of commercial OLED displays under an arrangement entered into in 2003.

We earned \$2,295,009 from sales of our OLED materials for evaluation purposes for the year ended December 31, 2003, compared to \$833,194 for the year ended December 31, 2002. The increase was mainly due to an increased volume of OLED materials purchased for evaluation by potential OLED display manufacturers, including our current development partners.

We entered into an arrangement in the third quarter of 2003 under which we began supplying one of our proprietary OLED materials to a customer for use in the manufacture of commercial passive matrix OLED displays. As a result, we earned \$68,160 in commercial chemical revenue and \$159,040 in license fees in connection with this arrangement for the year ended December 31, 2003. There were no such arrangements in effect during 2002.

We recognized \$2,650,000 in technology development revenue for the year ended December 31, 2003, compared to \$182,796 for the year ended December 31, 2002. The increase related to new and continuing technology development and evaluation agreements in 2003.

We earned \$1,420,984 in contract research revenue from the U.S. government for the year ended December 31, 2003, compared to \$1,468,958 for the year ended December 31, 2002. The dollar value and the number of our government contracts remained relatively constant during 2002 and 2003, and several of these contracts are expected to continue into 2005.

We incurred research and development expenses of \$17,897,522 for the year ended December 31, 2003, compared to \$15,804,267 for the year ended December 31, 2002. The increase was primarily a result of:

- o an increase of \$973,657 in non-cash operating expense associated with our Development and License Agreement with PPG Industries, due to the



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increased price of our common stock;

- o an increase of \$312,919 in costs associated with the increased number of patents filed in 2003 as compared to 2002;
- o an increase of \$641,451 in costs for the further development and operation of our facility in Ewing, New Jersey; and
- o stock performance bonuses of \$356,311 to research and development employees. No such bonuses were awarded in 2002.

The increase was offset by a \$289,900 decrease in costs associated with our Scientific Advisory Board due to the timing of payments.

We incurred general and administrative expenses of \$5,766,761 for the year ended December 31, 2003, compared to \$4,754,850 for the year ended December 31, 2002. The increase was a result of an increase of \$1,125,887 in costs associated with new and existing personnel and stock performance bonuses of \$661,775 awarded to employees. There were no such stock performance bonuses issued in 2002.

In September 2002, \$7,000,002 of the \$15,000,000 in convertible promissory notes that we had issued in August 2001 (the Notes) were converted into shares of our common stock, with the remaining amount being repaid in cash. As of the date of conversion and repayment, the \$15,000,000 face value of the Notes exceeded their then-carrying value due to an unamortized original issuance discount (OID) and beneficial conversion feature (BCF) on the Notes. As a result, upon the conversion and repayment of the Notes, we recognized a non-cash debt conversion and extinguishment expense of \$10,011,780 related to the unamortized portion of the OID and BCF and the intrinsic value of the Notes repurchased. During 2003, there were no such expenses (see Note 10 of the Notes to Consolidated Financial Statements).

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We had no interest expense for the year ended December 31, 2003, compared to \$3,298,589 for the year ended December 31, 2002. The decrease was primarily due to the retirement and conversion of the Notes in September 2002 and the fact that there was no debt in 2003, which compares to 2002 in which we recorded the amortization of OID and BCF of the Notes (see Note 10 of the Notes to Consolidated Financial Statements).

In September 2003, the conversion price of the Series B Convertible Preferred Stock we issued to Motorola, Inc. in September 2000 was adjusted in accordance with the Certificate of Designations for this stock. We accounted for this adjustment as a contingent beneficial conversion feature (CBCF). As a result, we recorded the CBCF as a deemed dividend in the amount of \$487,680. In 2002, the adjustment resulted in a deemed dividend of \$1,953,479 (see Note 9 of the Notes to Consolidated Financial Statements).

In August 2003, we completed an offering that was deemed dilutive under the terms of certain warrants we had previously issued and resulted in a reduction of the exercise prices of some of these warrants and an increase in the number of shares issuable under certain of these warrants. We treated and recorded this occurrence as a deemed dividend in the amount of \$546,622. No such dividends were recorded in 2002. The weighted-average anti-dilution provisions of these warrants will be triggered in the future if we issue additional shares below the various exercise prices of these warrants.

Year Ended December 31, 2002 Compared to Year Ended December 31, 2001

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We had a net loss attributable to holders of our common stock of \$32,972,680 (or \$1.71 per share) for the year ended December 31, 2002, compared to a net loss attributable to holders of our common stock of \$18,873,436 (or \$1.11 per share) for the year ended December 31, 2001. The increase was primarily due to:

- o an increase in cash and non-cash research and development expenses, as described below; and
- o an increase in non-cash interest expense on the Notes we issued in August 2001, as well as our incurring non-cash expense relating to the conversion and extinguishment of the Notes (see Note 10 of the Notes to Consolidated Financial Statements).

Our revenues were \$2,484,948 for the year ended December 31, 2002, compared to \$1,252,901 for the year ended December 31, 2001. We earned \$1,468,958 in contract research revenue from the U.S. government in 2002, compared to \$1,058,571 in 2001. The increase was primarily due to our commencement of work under six new government contracts in 2002, with work under four of these contracts beginning in the third and fourth quarters of 2002. In 2001, contract revenue was derived from three government contracts, one of which was completed in the third quarter of 2001.

We earned \$833,194 from our sales of OLED materials for evaluation purposes in 2002, compared to \$194,330 in 2001. The increase was mainly due to an increased volume of OLED materials purchased for evaluation by potential OLED display manufacturers, including our technology development and evaluation partners. We commenced sales of OLED materials for evaluation purposes in 2001.

During 2002, we received non-refundable cash payments of \$4,266,667 in the aggregate in connection with our technology development and evaluation and license agreements, compared to \$400,000 in similar cash payments we received in 2001. Of the cash payments we received in 2002, we recognized revenues of \$182,796 as fees for technology development and evaluation, with the remainder being recorded as unearned revenue. The increase in cash payments received resulted from our entering into new technology development and evaluation and license agreements in 2002, as well as from our receiving additional payments under agreements of this nature that were in place during 2001.

During 2002, we sold approximately \$3 million of our state-related income tax net operating losses (NOLs) to New Jersey under the Technology Tax Certificate Transfer Program. We received \$225,657 for the sale of these NOLs and recorded it as other revenue. We did not sell any of our NOLs prior to 2002, but may do so in the future.

We incurred research and development expenses of \$15,804,267 for the year ended December 31, 2002, compared to \$12,310,036 for the year ended December 31, 2001. The increase was mainly attributable to the following:

- o an increase of \$901,756 in costs associated with increased salaries and costs incurred in connection with, and as a result of, the expansion of our facility in Ewing, New Jersey;

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- o an increase of \$342,322 in costs associated with an increased number of patents filed in 2002 as compared to 2001; and

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o an increase of \$3,204,332 in non-cash charges in connection with our Development and License Agreement with PPG Industries (see Note 8 of the Notes to Consolidated Financial Statements).

The increase was offset by a \$1,054,786 decrease in costs associated with our Scientific Advisory Board, relating to the valuation of warrants received for compensation.

General and administrative expenses were \$4,754,850 for the year ended December 31, 2002, compared to \$3,915,854 for the year ended December 31, 2001. The increase was mainly due to increased salaries and costs incurred in connection with, and as a result of, the expansion of our facility in Ewing, New Jersey. We also experienced an increase in marketing costs, including costs relating to public relations and shareholder services.

In September 2002, \$7,000,002 of the \$15,000,000 in Notes that we had issued were converted into shares of our common stock, with the remaining amount being repaid by us in cash. As of the date of conversion and repayment, the \$15,000,000 face value of the Notes exceeded their then-carrying value due to an unamortized OID and BCF on the Notes. As a result, upon the conversion and repayment of the Notes, we recognized a non-cash debt conversion and extinguishment expense of \$10,011,780 related to the unamortized portion of the OID and BCF and the intrinsic value of the Notes repurchased. In the same period in 2001, there were no such expenses (see Note 10 of the Notes to Consolidated Financial Statements).

Our interest expense was \$3,298,589 for the year ended December 31, 2002, compared to \$1,848,142 for the year ended December 31, 2001. The increase was primarily due to amortization of the OID and BCF of the Notes (see Note 10 of the Notes to Consolidated Financial Statements).

In September 2002, the conversion price of the Series B Convertible Preferred Stock we issued to Motorola in September 2000 was adjusted in accordance with the Certificate of Designations for this stock. We accounted for this adjustment as a CBCF. As a result, we recorded the CBCF as a deemed dividend in the amount of \$1,953,479.

### Liquidity and Capital Resources

As of December 31, 2003, we had cash and cash equivalents of \$14,070,207, short-term investments of \$12,811,704 and investments in certificates of deposit and other liquid instruments with an original maturity of more than one year of \$3,255,574. This compares to cash and cash equivalents of \$15,905,416, short-term investments of \$4,662,898 and investments in certificates of deposit and other liquid instruments with an original maturity of more than one year of \$379,753, as of December 31, 2002. The increase in cash and cash equivalents and short-term and long-term investments of \$9,189,418 was primarily due to an increase in funds from our registered direct offering in 2003, less cash used in operations, as described below.

During 2003, cash used in operating activities was \$5,797,609, as compared to \$4,764,265 in 2002. The increase was mainly due to a decrease in non-refundable cash payments received in 2003 as compared to 2002. In 2003, we received \$3,000,000 in the aggregate in connection with our new and existing technology development and evaluation and license agreements, of which \$2,655,000 was recognized as revenue in 2003. This compares to \$4,266,667 in aggregate payments that we received in 2002 in connection with similar agreements, of which \$182,796 was recognized as revenue in 2002. This decrease was offset in part by an increase in accounts payable and accrued expenses.

In August 2003, we completed a registered direct offering of 2,012,500 shares of our common stock at a price of \$8.00 per share. The offering

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resulted in proceeds to us of \$14,829,357, net of \$1,270,643 in costs associated with completion of the offering.

In August 2002, we completed a registered direct offering of 1,277,014 shares of our common stock at a price of \$5.09 per share. In September 2002, we completed a subsequent registered direct offering of 383,452 shares of our common stock at a price of \$5.41 per share. These offerings resulted in aggregate proceeds to us of \$8,055,186, net of \$519,288 in costs associated with completion of the offerings.

Working capital increased to \$23,679,705 as of December 31, 2003, from working capital of \$18,541,596 as of December 31, 2002. The net increase was due primarily to the completion of the August 2003 registered direct offering of our common stock. Our net cash used in operating activities was \$5,797,609

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in 2003 and \$4,764,265 in 2002. Non-cash expenses related to the issuance of our common stock, warrants and options to purchase our common stock, and the amortization of discounts relating to the issuance, conversion and repayment of convertible debt (see Note 10 of the Notes to Consolidated Financial Statements) were \$6,450,016 in 2003 and \$19,162,516 in 2002.

We anticipate, based on our internal forecasts and assumptions relating to our operations (including, among others, assumptions regarding our working capital requirements, the progress of our research and development efforts, the availability of sources of funding for our research and development work, and the timing and costs associated with the preparation, filing, prosecution, maintenance and enforcement of our patents and patent applications), that we have sufficient cash, cash equivalents and short-term investments to meet our obligations into 2005. We believe that potential additional financing sources for us include long-term and short-term borrowings, public and private sales of our equity and debt securities and the receipt of cash upon the exercise of warrants and options. We have an effective shelf registration statement that would enable us to offer, from time to time, up to \$75,325,524 of our common stock, preferred stock, debt securities and other securities, subject to market conditions and other factors. It should be noted, however, that substantial additional funds will be required in the future for research, development and commercialization of our OLED technologies and materials, to obtain and maintain patents respecting these technologies and materials, and for working capital and other purposes, the timing and amount of which are difficult to ascertain. For example, under our 1997 Research Agreement with Princeton University, we are required to pay Princeton University \$1,495,599 per year through July 2007. There can be no assurance that additional funds will be available to us when needed, on commercially reasonable terms or at all.

### Contractual Obligations

As of December 31, 2003, we had the following contractual commitments:

	Payme		
Total	Less than 1 year	1-3 year	

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Contractual Obligations						
Long-term debt.....	\$	--	\$	--	\$	--
Operating lease obligations.....		1,483,217		302,207		887,01
Capital lease obligations.....		3,886		3,886		--
Other obligations:						
Sponsored research obligation.....		5,359,230		1,495,599		3,863,63
Minimum royalty obligation.....		2,100,000 (1)		600,000		1,300,00
		-----		-----		-----
Total.....		\$8,946,333 (1)		\$2,401,692		\$6,050,64
		=====		=====		=====

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(1) Under our Amended License Agreement with Princeton University and the University of Southern California, we are obligated to pay Princeton University minimum royalties of \$100,000 per year until such time as the agreement is no longer in effect.

Off-Balance Sheet Arrangements

As of December 31, 2003, we had no off-balance sheet arrangements in the nature of guarantee contracts, retained or contingent interests in assets transferred to unconsolidated entities (or similar arrangements serving as credit, liquidity or market risk support to unconsolidated entities for any such assets), or obligations (including contingent obligations) arising out of variable interests in unconsolidated entities providing financing, liquidity, market risk or credit risk support to us, or that engage in leasing, hedging or research and development services with us.

Recently Issued Accounting Pronouncements

The adoption of SFAS Nos. 145, 146, 148 and 150 and FASB Interpretation Nos. 45 and 46 did not have a material impact on our 2003 consolidated financial statements.

The EITF reached a consensus on EITF Issue No. 00-21, which provides accounting guidance for customer solutions where delivery or performance of products, services and/or performances may occur at different points in time or over different periods of time. Companies are required to adopt this consensus for fiscal periods beginning after June 15, 2003. We believe the adoption of EITF Issue No. 00-21 will not have a material impact on our financial position, results of operations, or liquidity.

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BUSINESS

Our Company

We are a leader in the research, development and commercialization of organic light emitting diode, or OLED, technologies for use in a variety of flat panel display and other applications. OLEDs are thin, lightweight and power efficient devices, highly suitable for use in portable, full-color display applications. We believe OLED displays will capture a share of the growing flat panel display market because they offer advantages over competing technologies with respect to brightness, power efficiency, viewing angle, video response time and manufacturing cost. We believe that our technology leadership and intellectual property position will enable us to share in the revenues from OLED displays as they enter the mainstream consumer electronics

market.

Our strategy is to further develop and license our proprietary OLED technologies to display manufacturers for use in applications such as mobile phones, digital cameras, laptop computers, televisions and other consumer electronic devices. In support of this primary objective, we also sell our OLED materials to these display manufacturers and others. Through our internal research and development efforts and our relationships with world-class partners such as Princeton University, the University of Southern California and PPG Industries, Inc., we have established a significant portfolio of OLED technologies and associated intellectual property rights. We currently own, exclusively license or have the sole right to sublicense more than 500 patents issued and pending worldwide. We are currently selling one of our proprietary OLED materials to Tohoku Pioneer Corporation, have established a cross-license agreement with DuPont Displays, Inc. and have entered into technology development and evaluation agreements with AU Optronics Corporation, Samsung SDI Co., Sony Corporation and Toyota Industries Corporation.

#### Industry Overview

##### The Flat Panel Display Market

Flat panel displays have been used for many years in a wide variety of portable consumer electronics products, including mobile phones, personal digital assistants, or PDAs, cameras, camcorders, electronic games and laptop computers. Due to their narrow profile, light weight and high resolution, flat panel displays are displacing cathode ray tube, or CRT, displays in larger product applications such as desktop computer monitors and televisions.

The flat panel display industry has experienced strong growth as adoption of these displays has increased. According to DisplaySearch, an independent market research firm tracking the flat panel display industry, the market for flat panel displays grew from \$24.6 billion in 2000 to \$40.4 billion in 2003, a compounded annual growth rate of 18.0%. DisplaySearch expects this market to continue to grow to an estimated \$71.6 billion in 2007.

##### The OLED Display Market

An OLED is a solid-state device made by placing a series of organic thin films between two electrodes. When electrical current is applied to an OLED, a bright light is emitted. OLEDs use red, green and blue pixels, or white light with color filters, to generate displays that exhibit a broad spectrum of colors. Currently, there are two mechanisms through which OLEDs emit light, phosphorescence and fluorescence. Fluorescent OLEDs emit light from a singlet state of the emissive material and phosphorescent OLEDs emit light from a triplet state of the emissive material. By emitting light from a triplet state, phosphorescence offers up to four times the power efficiency of fluorescence.

The initial market for OLED technologies and materials is flat panel displays, a market currently dominated by liquid crystal displays, or LCDs. However, OLED displays are an attractive alternative to LCDs as they offer a number of potential advantages, including:

- o a thinner profile and lighter weight;
- o higher brightness and contrast ratios, leading to a sharper picture image and graphics;

- o wider viewing angles;
- o faster response times for video;
- o higher efficiencies, thereby reducing power consumption; and
- o lower cost manufacturing methods and materials.

According to DisplaySearch, the OLED display market is expected to experience significant growth with revenues increasing from an estimated \$263 million in 2003 to an estimated \$3.5 billion by 2008. DisplaySearch forecasts that this growth will be driven by the adoption of OLED displays in small- to medium-sized product applications, such as mobile phones, car audio systems, digital cameras, PDAs, DVDs, handheld TVs, notebook PCs and industrial applications. The following table shows this forecasted growth on a yearly basis.

	2002	2003	2004	2005	
	-----	-----	-----	-----	-----
Revenue (in millions)	\$ 116	\$ 263	\$ 539	\$ 1,180	\$
Units (in thousands)	5,957	17,025	33,160	59,952	1

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Source: DisplaySearch, 2003.

Although DisplaySearch's forecast anticipates OLED displays initially being adopted for small- to medium-sized product applications, larger display applications may represent a significant potential market for OLED displays. For larger applications such as laptop computers, desktop computer monitors and televisions, OLED displays may have advantages over LCDs because of their sharper picture image and graphics, superior video response time, wider viewing angle and potentially lower manufacturing cost. All of these characteristics are qualities that are particularly important in larger display applications.

While the display characteristics of OLEDs and LCDs are different, they share many similarities in terms of manufacturing technology and infrastructure, such as those relating to active matrix backplane technologies. These similarities may enable the conversion of existing LCD manufacturing facilities to OLED display production with relatively low capital investment.

Many companies currently are engaged in efforts to develop and commercialize OLED displays. We believe that if their efforts are successful, they could result in flat panel displays nearly as thin as a piece of paper with performance characteristics similar to those of CRT displays. In addition, due to the inherent transparency of organic materials and through the use of transparent electrode technology, OLEDs eventually may enable the production of transparent displays for use in products such as automotive windshields and windows with embedded displays. Organic materials also make technically possible the development of flexible displays for use in an entirely new set of product applications, such as display devices that can be rolled up for storage. Research also is being conducted on OLEDs for applications such as energy-efficient solid-state lighting.

Our Competitive Strengths

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We believe our position as one of the leading technology developers in the OLED industry is the direct result of our technological innovation. We have built an extensive intellectual property portfolio around our OLED technologies and are working diligently to enable our manufacturing partners to adopt our technologies for commercial usage. Our key competitive strengths include:

**Technology Leadership.** We are a recognized technology leader in the OLED industry. We and our research partners at Princeton University and the University of Southern California pioneered the development of our phosphorescent OLED, or PHOLED, technology, which can be used to produce OLED displays that are up to four times as power efficient as current LCDs or fluorescent OLED displays. We believe that our PHOLED technology is well-suited for industry usage in the commercial production of OLED displays. Through our relationships with companies such as PPG Industries and our academic partners we have developed and continue to develop novel OLED materials that we believe will facilitate the adoption of our OLED technologies by display manufacturers.

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**Relationships with Leading Display Manufacturers.** We have established relationships with well-known display manufacturers that are using, or are evaluating, our OLED technologies and materials for commercial applications. In August 2003, we began supplying Tohoku Pioneer with our proprietary red phosphorescent material for its commercial production of full-color OLED displays for mobile phones currently being sold in Japan. In addition, we have entered into a cross-license agreement with DuPont Displays and have established technology development and evaluation agreements with a number of companies, including AU Optronics, DuPont Displays, Samsung SDI, Sony and Toyota Industries.

**Broad Portfolio of Intellectual Property.** We believe that our extensive portfolio of patents, trade secrets and know-how provides us with a competitive advantage in the OLED industry. Through our internal development efforts and our relationships with Princeton University, the University of Southern California and Motorola, Inc., we own, exclusively license or have the sole right to sublicense over 500 patents issued and pending worldwide related to our PHOLED and other OLED technologies and materials. We also continue to accumulate valuable trade secret information and technical know-how relating to our OLED technologies and materials.

**Business Model Focused on Technology Licensing.** We have adopted an innovative business model for the display industry in which we neither manufacture nor sell OLED displays incorporating our technologies and materials. Rather, we are focused on licensing our OLED technologies to display manufacturers on a non-exclusive basis. PPG Industries currently manufactures our proprietary OLED materials which we then qualify and sell to display manufacturers. We believe our business model allows us to concentrate on our core strengths of technology development and innovation, while at the same time providing significant operating leverage. We also believe that this approach may reduce potential competitive conflicts between us and our customers.

**Established U.S. Government Contracts to Fund Research and Development.** We have entered into several research and development contracts with U.S. government agencies such as the Department of Defense Advanced Research Projects Agency (DARPA), U.S. Army Research Laboratories, U.S. Department of the Army and the Department of Energy. Under these contracts, the U.S.



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government funds a portion of our efforts to develop next-generation OLED technologies for applications such as flexible displays and energy-efficient solid-state lighting. This enables us to supplement our internal research and development budget with additional funding.

Experienced Management and Scientific Advisory Team. Our management team has significant experience in developing business models focused on licensing disruptive technologies in high growth industries which serves to differentiate us from our competitors. In addition, our management team has assembled a Scientific Advisory Board that includes some of the leading researchers in the OLED industry. We believe our Scientific Advisory Board, which includes OLED researchers Dr. Stephen R. Forrest of Princeton University, Dr. Mark E. Thompson of the University of Southern California and Dr. Phillip C. Yu, Associate Director of Research and Development of PPG Industries, as well as Dr. Julia J. Brown, the Chair of our Scientific Advisory Board and our Chief Technical Officer and Dr. Michael Hack, our Vice President of Strategic Product Development, has enhanced our reputation and our competitive profile.

### Our Business Strategy

Our business strategy is to promote our OLED technologies and materials for widespread use in OLED displays and other product applications. We presently are focused on the following steps to implement our business strategy:

Target Leading Display Manufacturers. We are targeting leading display manufacturers as potential commercial licensees of our OLED technologies and purchasers of our OLED materials. For example, we have entered into a relationship with Tohoku Pioneer to purchase our proprietary red phosphorescent material for its commercial production of full-color OLED displays and are pursuing other such relationships. We provide technical assistance and support to display manufacturers evaluating our OLED technologies and materials because we believe that successful incorporation of our technologies and materials in commercial applications may place competitive pressure on other industry participants to adopt them.

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Enhance Our Portfolio of Existing OLED Technologies. We believe that a strong portfolio of OLED technologies is critical to our success in the display industry. Consequently, we are continually seeking to expand this portfolio through our internal development efforts, our collaborative relationships and other strategic opportunities. Our primary focus is to develop additional red, green, blue and white PHOLED materials, with increased efficiencies, enhanced color gamut and extended lifetimes that would allow them to be used in a broader array of OLED display products, such as televisions. Currently, our red material is in production with one manufacturer, our red and green materials are being evaluated by a number of manufacturers and our blue and white materials are still under development.

Expand Development of Next-Generation Technologies. We currently are conducting research activities relating to next-generation OLED technologies. For example, our present OLED initiatives include applications involving flexible displays, transparent displays and energy-efficient solid-state lighting. We also are conducting research with our partners on the use of organic thin-film technology in applications such as lasers, transistors, photo detectors, memories and other related devices. Our focus on next-generation technologies is designed to enable us to continue our position as a leading provider of OLED technologies as new markets emerge.

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### Our Phosphorescent OLED Technologies

Phosphorescent OLEDs, or PHOLEDs, our key proprietary technology, utilize novel materials and device structures that allow OLEDs to emit light through a process known as phosphorescence. Conversely, fluorescent OLEDs emit light through an inherently less efficient process. Testing has demonstrated that PHOLEDs exhibit device efficiencies up to four times higher than those exhibited by fluorescent OLEDs. This substantially reduces the power requirements of an OLED and is potentially useful for hand-held devices, such as mobile phones, where battery power is often a limiting factor. Phosphorescence also may be important for large-area displays such as televisions, where higher efficiency may enable longer product lifetimes. Through our commercial relationships with PPG Industries and several display manufacturers, as well as through research we are sponsoring with our academic partners, we are conducting research and development work directed towards both improving our existing PHOLED technologies and materials and developing new PHOLED technologies and materials. A significant portion of this work involves the evaluation and qualification of PHOLED materials for possible use in the commercial production of OLED displays.

OLEDs can be manufactured using different processing methods. Currently, the most common method is through vacuum thermal evaporation, or VTE. Another method involves preparing solutions of the various organic materials in an OLED that can be solution processed by techniques such as spin coating or inkjet printing onto the substrate. Solution processing methods, and inkjet printing in particular, have the potential to be lower cost approaches to OLED manufacturing and scalable to large area displays. Others have demonstrated that solution processing methods can be used to produce OLEDs containing polymer-based organic materials, and we are developing printable PHOLEDs, or P2OLEDs, to demonstrate that these methods can be used with our PHOLED technologies. We currently are conducting this work on P2OLEDs under our Joint Development Agreement with DuPont Displays.

### Our Additional Proprietary OLED Technologies

We currently are focusing our research, development and commercialization efforts on a number of OLED device and manufacturing technologies, including the following:

Transparent OLEDs (TOLEDs). We are developing a technology based on the production of OLEDs that have transparent cathodes. Conventional OLEDs use a reflective metal cathode and a transparent anode. In contrast, TOLEDs use a transparent cathode and either a transparent, or reflective or opaque metal anode. TOLEDs utilizing transparent cathodes and reflective metal anodes are known as "top-emission" OLEDs. In a "top-emission" active matrix OLED, light is emitted without having to travel through much of the device electronics where a substantial portion of it is absorbed. This is expected to result in OLED displays having image qualities and lifetimes superior to those of conventional active matrix OLEDs. TOLEDs utilizing cathodes and anodes that are both transparent may be useful in novel flat panel display applications requiring

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semi-transparency or transparency, such as graphical displays in automotive windshields. We have agreements with several display manufacturers that have expressed interest in evaluating our TOLED technology for possible use in the commercial production of OLED displays.

Flexible OLEDs (FOLEDs). We are developing a technology that involves the

fabrication of small molecule OLEDs on flexible substrates. Most OLED and other flat panel displays are built on rigid substrates such as glass. FOLEDs are OLEDs built on non-rigid substrates such as plastic or metal foil. FOLEDs are expected to be conformable to specific shapes, able to withstand repeated bending or flexing, and eventually capable of being rolled into a cylinder, similar to a window shade. These features create the possibility of new flat panel display product applications that do not exist today, such as a portable, roll-up Internet connectivity and communications device. FOLEDs also may be amenable to being produced using more efficient continuous, or roll-to-roll, processing methods. We currently are conducting research and development on FOLEDs under several of our U.S. government programs.

Organic Vapor Phase Deposition (OVPD). The standard approach for manufacturing a small molecule OLED, including a PHOLED, is based on a process known as vacuum thermal evaporation. In VTE, the thin layers of organic material in an OLED are deposited in a high-vacuum environment. An alternate approach for manufacturing a small molecule OLED is based on OVPD. In contrast to the VTE process, the OVPD process utilizes a carrier gas stream in a hot walled reactor in a low pressure environment to deposit the layers of organic material in an OLED. The OVPD process may offer advantages over the VTE process through the reduction of material waste and by being more readily scalable to the production of large-area OLED displays. Furthermore, the OVPD process may offer advantages in OLED performance by enhanced deposition control. We currently are working with Aixtron AG, a leading manufacturer of metal-organic chemical vapor deposition equipment, to develop and qualify a tool for the fabrication of OLED displays utilizing an OVPD process.

#### Our Strategic Relationships with Display Manufacturers

We have established evaluation, joint development, technical assistance, licensing, supply and other similar relationships with numerous display manufacturers. These relationships generally are directed towards tailoring our proprietary OLED technologies and materials for use by the display manufacturers. Our ultimate objective is to license our OLED technologies and sell our OLED materials to these manufacturers for their commercial production of OLED displays. Our key relationships with display manufacturers include:

Tohoku Pioneer. In August 2003, we entered into an arrangement to provide our proprietary red PHOLED material to Tohoku Pioneer Corporation, a subsidiary of Pioneer Corporation, for the commercial production of its passive matrix OLED displays on glass substrates. Under this arrangement, we receive payments from Tohoku Pioneer for the PHOLED material and license fees for allowing Tohoku Pioneer to use this material in the production of passive matrix OLED displays. Tohoku Pioneer sells these displays to one of its customers who uses them as the exterior sub-display for a mobile phone currently being sold in Japan.

DuPont Displays. In December 2002, we entered into a Joint Development Agreement with DuPont Displays, Inc. and its parent E.I. DuPont de Nemours and Company (DuPont) for the development of novel phosphorescent materials and device structures for solution processed OLEDs (our P2OLEDs). Under the Joint Development Agreement, we have the exclusive right to sublicense any intellectual property developed under the program for use with solution processed OLED displays on rigid glass substrates.

We also entered into a Cross-License Agreement and a Developed Device Additional Payment Agreement with DuPont in December 2002. Under these agreements, we granted DuPont a non-exclusive license under our background phosphorescent emission, transparent cathode and inkjet printing patents, and under any intellectual property developed by us under our joint development program with DuPont, to make and sell solution processed OLED displays on rigid glass substrates. DuPont paid us an up-front license fee and agreed to

pay us running royalties on its sales of these displays. DuPont has the option to reduce the royalty rates on these sales if it elects to make a cash payment to us by January 2005. DuPont had a similar right to reduce these royalty rates by making a cash payment to us by January 2004, but it did not elect to do

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so. As of December 31, 2003, DuPont had not commenced commercial sales of P2OLED displays and had not paid us royalties under either of these agreements.

Sony. We entered into a new Joint Development and Evaluation Agreement with Sony Corporation effective February 2003. This agreement is directed towards tailoring our proprietary PHOLED materials for use in Sony's OLED device structures. This follows an earlier agreement with Sony under which we assisted Sony in its development of active matrix OLED displays utilizing our high-efficiency PHOLED technology and materials. We continue to sell our proprietary PHOLED materials to Sony in support of its work under this new agreement.

Samsung SDI. In July 2001, we entered into a Joint Development Agreement with Samsung SDI Co. The original focus of our agreement with Samsung SDI was the joint development of a prototype portable, low-power OLED display for use in mobile phones and other devices. We continue to work with Samsung SDI under this agreement and are selling our proprietary PHOLED materials to Samsung SDI in support of this work.

Toyota Industries. In October 2002, we entered into an OLED Technology Development and Evaluation Agreement with Toyota Industries Corporation. Under this agreement, we are conducting development activities with Toyota Industries relating to the use of our proprietary PHOLED technology and materials to produce sources of white light.

AU Optronics. In May 2003, we announced that AU Optronics Corporation had fabricated a low-power consumption, full-color active matrix OLED display combining its proprietary amorphous silicon backplane technology with our proprietary PHOLED technology. The display was showcased at the 2003 Society for Information Display International Symposium and was the subject of a scientific paper presented jointly by us and AU Optronics at the symposium. This work stemmed from a joint development agreement we have had in place with AU Optronics since October 2001.

#### Our OLED Materials Supply Business

In support of our primary objective of licensing our OLED technologies, we supply our OLED materials to display manufacturers and others. We device qualify our materials before shipment in order to ensure the materials meet the specifications we agree upon with our customers.

In October 2000, we entered into a Supply Agreement and a Development and License Agreement with PPG Industries. Under the Supply Agreement, we appointed PPG Industries as the exclusive supplier of OLED materials proprietary to us that are intended for use in the commercial production of OLEDs. PPG Industries sells these OLED materials to us and we, in turn, resell them to display manufacturers. Under the Development and License Agreement, PPG Industries, among other things, supplies us with OLED materials that we resell to display manufacturers and others for evaluation purposes. The current term of the Development and License Agreement extends through 2005 and the current term of the Supply Agreement extends through 2007.

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In August 2003, we commenced commercial sales of our proprietary red PHOLED material to Tohuko Pioneer. Tohuko Pioneer is currently using this material in the commercial production of its passive matrix OLED displays on glass substrates. Tohuko Pioneer sells these displays to one of its customers who uses them as the exterior sub-display for a mobile phone currently being sold in Japan.

### Research and Development

Our research and development activities are focused on the advancement of our OLED technologies and materials. We conduct this research and development both internally and through various relationships with our commercial business partners and academic institutions.

#### Internal Development Efforts

We conduct a substantial portion of our OLED development activities at our state-of-the-art development and pilot-line facility in Ewing, New Jersey. Built in 1999 and expanded in 2001, this facility is designed to perform technology development including device and process optimization, prototype fabrication,

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manufacturing scale-up studies, process and product testing, and characterization and reliability studies. The pilot line is designed to produce several hundred 6" x 6" OLED plates per month, and contains substrate patterning, organic material deposition, display packaging, module assembly, and extensive test equipment in Class 100 and 100,000 clean rooms and opto-electronic test laboratories. The facility also serves as a technology transfer site for work with our business partners. We also are in the process of qualifying a new OLED deposition system at this facility that will enhance our OLED product testing pilot production capabilities.

As of December 31, 2003, we employed a team of 28 research scientists, engineers and laboratory assistants at our Ewing, New Jersey facility. This team includes chemists, physicists, engineers with electrical, chemical and mechanical backgrounds, and highly-trained experimentalists.

#### University Sponsored Research

We have long-standing relationships with Princeton University and the University of Southern California for the conduct of research relating to our OLED and other organic thin-film technologies and materials for applications such as displays and lighting. This research is performed at Princeton University's Advanced Technology Center for Photonics and Optoelectronic Materials (POEM) under the direction of Dr. Stephen R. Forrest and at the University of Southern California's Synthetic Materials Laboratories under the direction of Dr. Mark E. Thompson.

We fund the research conducted at Princeton University and the University of Southern California under a Research Agreement we executed with the Trustees of Princeton University in October 1997. The University of Southern California conducts its portion of this research under a subcontract between it and Princeton University. In April 2002, we extended the term of our Research Agreement with Princeton University through July 2007. Under the Research Agreement, we paid Princeton University \$933,156 in 2003, \$859,339 in 2002 and \$758,732 in 2001. Our maximum funding commitment under the Research Agreement for the period from August 2002 through July 2007 is \$1,495,599 per year. We

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have exclusive license rights to all patents arising out of the research conducted by Princeton University and the University of Southern California under the Research Agreement.

In May 2001, we entered into a Contract Research Agreement with the Chitose Institute of Science and Technology of Japan (CIST), under which we funded research at CIST relating to high-efficiency OLED materials and device structures. This relationship ran through April 2003, and we are currently negotiating an agreement to renew our collaborative work with CIST.

### PPG Industries

Under our Development and License Agreement with PPG Industries, a team of approximately eight PPG Industries scientists and engineers are assisting us in developing and commercializing various OLED materials in which we have a proprietary interest. PPG Industries receives shares of our common stock and warrants to purchase shares of our common stock as compensation for this work, though under limited circumstances PPG Industries has the right to demand payment in cash in lieu of stock. In January 2003, we amended this agreement with PPG Industries to cover the supply of OLED materials for purposes of development and manufacturing qualification at our facilities and the facilities of our customers.

### Aixtron

In July 2000, we entered into a Development and License Agreement with Aixtron AG of Aachen, Germany to jointly develop and commercialize equipment for the manufacture of OLEDs using the OVPD process. A pre-production OVPD manufacturing tool was delivered to our Ewing, New Jersey facility in January 2002. We continue to work with Aixtron to upgrade and qualify this tool for the production of OLEDs.

Under the Development and License Agreement, we granted Aixtron an exclusive license to produce and sell equipment used to manufacture OLEDs and other devices using our proprietary OVPD process. Aixtron is required to pay us royalties on its sales of this equipment. Purchasers of the equipment also must obtain

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rights to use our proprietary OVPD process to manufacture OLEDs and other devices, which they may do through us or Aixtron. If these rights are granted through Aixtron, Aixtron is required to make additional payments to us.

### U.S. Government-Funded Research

We have entered into several U.S. government contracts and subcontracts to fund a portion of our efforts to develop next-generation OLED technologies for applications such as flexible displays and energy-efficient solid-state lighting. These include, among others, Small Business Innovation Research (SBIR) Phase I program contracts for the demonstration of technical merit and feasibility and SBIR Phase II program contracts for the development of well-defined prototypes. On contracts for which we are the prime contractor, we subcontract portions of the work to various entities and institutions, including Princeton University, the University of Southern California, Pennsylvania State University, Kyung Hee University in South Korea, L-3 Communications Corporation and Vitex Systems. All of our government contracts and subcontracts are subject to termination at the election of the contracting governmental agency. Our government contracts include, among others, the following:

- o Roll-Up OLED Displays in Handheld Devices. In October 2002, we were awarded a two-year \$1,761,465 cooperative agreement by the U.S. Army Research Laboratories (ARL) to develop technology for flexible, low-power consumption OLED displays and communication components for use in next-generation mobile communication devices. An example of such a device is a pen-like unit that functions as a portable computer with an OLED display that rolls up into the device. ARL has an option to extend the program for a third year, for which ARL would provide us with additional funding of \$2,000,000 and we and our subcontractors would make additional contributions through cost sharing.
- o Conformable OLED Displays for Head-Mounted Devices. In January 2003, we were awarded a two-year, \$729,996 SBIR Phase II program contract by the U.S. Department of the Army to further its development of conformable and transparent displays for use in helmets and other head-mounted devices. In February 2002, we completed our Phase I work on this program.
- o OLED Displays on Metal Foil. In November 2003, we were awarded a two-year \$730,000 SBIR Phase II program contract by the U.S. Department of the Army to build a prototype of a rugged, light-weight active matrix OLED display on durable metal foil. This award followed our completion of Phase I work on this program.
- o OLEDs for White Lighting. In June 2003, we were awarded a two-year \$750,000 SBIR Phase II program contract by the U.S. Department of Energy to demonstrate the feasibility of our proprietary PHOLED and FOLED technologies for high-performance lighting applications. This award followed our completion of Phase I work on two earlier programs. One of these earlier programs was designed to demonstrate a broadband white light source derived from the combination of red, green and blue PHOLED stripes; the other was intended to demonstrate an innovative PHOLED structure that emits light simultaneously from monomer and aggregate energy states.

#### The United States Display Consortium

We are a member of the United States Display Consortium (USDC), a cooperative industry and governmental effort aimed at developing an infrastructure to support North American flat panel display manufacturing. The USDC's role is to provide a common platform for flat panel display manufacturers, developers, users and the manufacturing equipment and supplier base. It has more than 90 members, as well as support from ARL. We are one of 12 members on the Governing Board of the USDC and we actively participate on its Technical Council.

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#### Intellectual Property

Along with our personnel, our primary assets are intellectual property. This includes numerous U.S. and foreign patents and patent applications that we own, exclusively license or have the sole right to sublicense. It also includes a substantial body of trade secrets and technical know-how that we have accumulated over time.

#### Our Patents

Our research and development activities, conducted both internally and through collaborative programs with our partners, have resulted in the filing

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of a substantial number of patent applications relating to our OLED technologies and materials. As of December 31, 2003, we owned 34 issued and pending patents in the U.S., together with numerous counterparts filed in various foreign countries. These patents will start expiring in 2020.

Patents We License from Princeton University and the University of Southern California

We exclusively license the bulk of our patent rights under an Amended License Agreement we executed with the Trustees of Princeton University and the University of Southern California in October 1997. As of December 31, 2003, these licensed patent rights included 143 issued and pending patents in the U.S., together with numerous counterparts filed in various foreign countries. These patents will start expiring in 2014.

Under the Amended License Agreement, Princeton University and the University of Southern California granted us a worldwide, exclusive license to specified patents and patent applications relating to OLED technologies and materials. This license grant also extends to any patent rights arising out of the research conducted under our Research Agreement with Princeton University. We are free to sublicense to third parties all or any portion of our patent rights under the Amended License Agreement. The term of the Amended License Agreement is perpetual, though it is subject to termination for an uncured material breach or default by us, or if we become bankrupt or insolvent.

Princeton University is responsible for the filing, prosecution and maintenance of all patent rights licensed to us under the Amended License Agreement pursuant to an Interinstitutional Agreement between Princeton University and the University of Southern California. However, we participate closely in this process and have the right to instruct patent counsel on additional matters to be covered in any patent applications filed by Princeton University. We are required to bear all costs associated with the filing, prosecution and maintenance of these patent rights.

We are required under the Amended License Agreement to pay Princeton University royalties for licensed products sold by us or our sublicensees. These royalties amount to 3% of the net sales price for licensed products sold by us and 3% of the revenues we receive for licensed products sold by our sublicensees. These royalty rates are subject to renegotiation for products not reasonably conceivable as arising out of the Research Agreement if Princeton University reasonably determines that the royalty rates payable with respect to these products are not fair and competitive. Princeton University shares a portion of these royalties with the University of Southern California under their Interinstitutional Agreement.

We paid Princeton University minimum royalties under the Amended License Agreement in the amounts of \$100,000 for 2003, \$100,000 for 2002 and \$75,000 for 2001. For 2004 and thereafter, this minimum royalty obligation is \$100,000 per year. We also are required under the Amended License Agreement to use commercially reasonable efforts to bring the licensed OLED technology to market. However, this requirement is deemed satisfied if we perform our obligations under the Research Agreement and, when that agreement ends, if we invest a minimum of \$800,000 per year in research, development, commercialization or patenting efforts respecting the patent rights licensed to us under the Amended License Agreement.

Patents We License from Motorola

In September 2000, we entered into a License Agreement with Motorola whereby Motorola granted us perpetual license rights to what are now 74 issued U.S. patents relating to Motorola's OLED technologies, together with numerous foreign counterparts in various countries. These patents will start expiring



in 2014.

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We have the right to freely sublicense these patents to third parties and, with limited exceptions, Motorola has agreed not to license these patents to others in the OLED industry.

Motorola remains responsible for the filing, prosecution and maintenance of all patent rights licensed to us under the License Agreement, including all associated costs. Motorola is obligated to keep us informed as to the status of these activities.

We are required under the License Agreement to pay Motorola royalties on gross revenues received by us on account of our sales of OLED products or components, or from our sublicensees on account of their sales of OLED products or components, whether or not these products or components are based on inventions claimed in the patent rights licensed from Motorola. We have the option to pay these royalties to Motorola in either all cash or 50% cash and 50% shares of our common stock. We also have minimum royalty obligations to Motorola of \$500,000 in cash or cash and stock for the 2003-2004 period and \$1,000,000 in cash or cash and stock for the 2005-2006 period. Thereafter, we have no minimum royalty obligations to Motorola.

In connection with our execution of the License Agreement, in 2000 we issued to Motorola 200,000 shares of our common stock, 300,000 shares of our Series B Convertible Preferred Stock, and immediately vesting seven-year warrants to purchase an additional 150,000 shares of our common stock at an exercise price of \$21.60 per share. As of December 31, 2003, 225,000 shares of the Series B Convertible Preferred Stock were convertible into 343,916 shares of our common stock. The remaining 75,000 shares of the Series B Convertible Preferred Stock will vest and all shares of Series B Convertible Preferred Stock will automatically convert into shares of our common stock in September 2004.

#### Intellectual Property Developed under Our Government Contracts

We and our subcontractors have developed and may continue to develop patentable OLED technology inventions under our various U.S. government contracts and subcontracts. Under these arrangements, we or our subcontractors generally can elect to take title to any patents on these inventions, and to control the manner in which these patents are licensed to third parties. However, the U.S. government reserves the right to utilize, and to permit others to utilize, these inventions and any associated technical data for government purposes, and, in some cases, for unlimited purposes. In addition, if the U.S. government determines that we or our subcontractors have not taken appropriate steps to achieve practical application of these inventions, it may require that we or our subcontractors license these inventions to third parties.

#### Trade Secrets and Technical Know-How

We have accumulated, and continue to accumulate, a substantial amount of valuable trade secret information and technical know-how relating to OLED technologies and materials. Where practicable, we share portions of this information and know-how with display manufacturers and other business partners on a confidential basis. We also employ various methods to protect this information and know-how from unauthorized use or disclosure, although no such methods can afford complete protection. Moreover, because we derive some of this information and know-how from academic institutions such as Princeton University and the University of Southern California, there is an increased

potential for public disclosure.

#### Competition

The display industry in which we operate is highly competitive. We compete against existing flat panel display technologies, dominated by LCDs, as well as emerging OLED technologies.

##### Flat Panel Display Competitors

Numerous domestic and foreign companies have developed or are developing LCD and other flat panel display technologies that will compete with our OLED display technologies. These include plasma, field emissive and vacuum fluorescent display technologies. Companies pursuing these technologies include, among others, Sony, Pioneer Corporation, Sharp Corporation, Toshiba Matsushita Display Technology Co., Ltd., Fujitsu, Ltd., Hitachi Displays, Ltd., NEC Corporation, Sanyo Electric Co., Ltd., Samsung Electronics Co., Ltd., Samsung SDI, LG Electronics, Ltd., AU Optronics, Chi Mei Optoelectronics Corporation, RiTdisplay

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Corporation, Chunghwa Picture Tubes, Ltd., TECO Optronics Corporation, Toppoly Optoelectronics Corporation and HannStar Display Corporation. Many of these competitors have greater name recognition and more extensive financial, marketing and research resource capabilities than we do.

We believe that OLED display technologies ultimately may be able to overcome certain existing limitations of LCD and other flat panel display technologies, such as high power consumption, costly manufacturing methods, poor contrast ratios and limited viewing angles, for many product applications. However, other companies, including those listed above, may succeed in improving these competing display technologies, or in developing new display technologies, that are superior to OLED display technologies in various respects. We cannot predict the timing or extent to which such improvements or developments may occur.

##### OLED Competitors

Eastman Kodak Company has licensed its competing fluorescent OLED technology and other patents for passive matrix OLED display applications to a number of display manufacturers, including several of those with whom we have been working. In addition, Eastman Kodak and Sanyo Electric through a joint venture known as SK Display Corporation, Samsung NEC Mobile Display Co., Ltd., RiTdisplay and Pioneer are presently manufacturing OLED products using technologies different from ours. Eastman Kodak and other competitors of ours, such as Covion Organic Semiconductors GmbH and Idemitsu Kosan Co., are selling OLED materials that compete with our proprietary PHOLED materials. Another OLED industry participant, Cambridge Display Technology, Ltd., has licensed and is working with a number of display manufacturers on its competing polymer OLED technology.

A number of companies, including many of our flat panel display competitors, together with Seiko Epson Corporation, Fuji Film Co., Ltd., Canon, Inc., Dow Chemical Corporation, Dupont Displays, Toyo Ink Mfg. Co., Ltd., Sumitomo Chemical Co., Ltd., Mitsubishi Chemical Corporation, Covion Organic Semiconductors and Idemitsu Kosan, are engaged in research, development and commercialization activities with respect to OLED technologies and materials. Many of these competitors have greater name recognition and more extensive financial, marketing and research resource capabilities than we do.

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Our existing business relationships with Tohoku Pioneer and other display manufacturers suggest that our OLED technologies and materials, particularly our PHOLED technologies and materials, may be adopted by other manufacturers for use in the production of commercial OLED displays. However, Eastman Kodak, Cambridge Display Technology and others may succeed in improving their competing OLED technologies and materials so as to render them superior to ours. We cannot be sure of the extent to which display manufacturers ultimately may adopt our OLED technologies and materials for the production of commercial OLED displays.

### Facilities

Our main corporate offices and our research and development facility are located at 375 Phillips Boulevard in Ewing, New Jersey. We currently lease approximately 21,000 square feet of space at this facility. In September 2003, we extended the term of this lease through December 31, 2008. At the same time we secured the right, exercisable by us at any time on or after July 1, 2004, to purchase the building in which our offices and research and development facility are located for a fixed price. Should we exercise this purchase option, we would need to lease back a portion of the building space to the current landlord on terms substantially the same as those of our current lease agreement.

### Employees

As of December 31, 2003, we had 45 full-time employees and one part-time employee, none of whom are unionized. We believe that relations with our employees are good.

### Legal Proceedings

We are not currently a party to any legal proceedings of a material nature.

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## MANAGEMENT

The following table sets forth certain information with respect to our executive officers and directors as of February 20, 2004:

Name	Age	Position(s)
Sherwin I. Seligsohn .....	68	Chairman of the Board and Chief Executive Officer
Steven V. Abramson .....	52	President, Chief Operating Officer and Executive Vice President
Sidney D. Rosenblatt .....	56	Chief Financial Officer, Treasurer, Secretary and Director
Julia J. Brown, Ph.D. ....	42	Vice President and Chief Technical Officer
Leonard Becker (1) .....	80	Director
Elizabeth H. Gemmill (1) .....	58	Director
C. Keith Hartley (1) .....	61	Director
Lawrence Lacerte (1) .....	51	Director

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 (1) Member of the Audit and Compensation Committees.

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Sherwin I. Seligsohn has been our Chief Executive Officer and Chairman of the Board since June 1995. He also served as our President from June 1995 through May 1996. Mr. Seligsohn founded and since has served as the sole Director, President and Secretary of American Biomimetics Corporation, International Multi-Media Corporation, and Wireless Unified Network Systems Corporation. He is also Chairman of the Board and Chief Executive Officer of Global Photonic Energy Corporation. From June 1990 to October 1991, Mr. Seligsohn was Chairman Emeritus of InterDigital Communications, Inc. (InterDigital), formerly International Mobile Machines Corporation. He founded InterDigital and from August 1972 to June 1990 served as its Chairman of the Board. Mr. Seligsohn is a member of the Advisory Board of the Advanced Technology Center for Photonics and Optoelectronic Materials (POEM) at Princeton University.

Steven V. Abramson has been our President and Chief Operating Officer and a member of our Board of Directors since May 1996. From March 1992 to May 1996, he was Vice President, General Counsel, Secretary and Treasurer of Roy F. Weston, Inc., a worldwide environmental consulting and engineering firm. From December 1982 to December 1991, he held various positions at InterDigital, including General Counsel, Executive Vice President and General Manager of the Technology Licensing Division. Mr. Abramson is a member of the Advisory Board of the Advanced Technology Center for Photonics and Optoelectronic Materials (POEM) at Princeton University and is also a member of the Board of Governors of the United States Display Consortium.

Sidney D. Rosenblatt has been our Executive Vice President, Chief Financial Officer, Treasurer and Secretary since June 1995, and has been a member of our Board of Directors since May 1996. Mr. Rosenblatt is the owner of and served as the President of S. Zitner Company from August 1990 through December 1998. From May 1982 to August 1990, Mr. Rosenblatt served as the Senior Vice President, Chief Financial Officer and Treasurer of InterDigital.

Julia J. Brown, Ph.D. has been our Vice President and Chief Technical Officer since June 2002. She joined us in June 1998 as our Vice President of Technology Development. From November 1991 to June 1998, Dr. Brown was a Research Department Manager at Hughes Research Laboratories where she directed the pilot line production of high-speed Indium Phosphide-based integrated circuits for insertion into advanced airborne radar and satellite communication systems. Dr. Brown received an M.S. and Ph.D. in Electrical Engineering/Electrophysics at the University of Southern California under the advisement of Professor Stephen R. Forrest. Dr. Brown has served as an Associate Editor of the Journal of Electronic Materials and as an elected member of the Electron Device Society Technical Board. She co-founded an international engineering mentoring program sponsored by the Institute of Electrical and Electronics Engineers and is a Senior Member of the IEEE. Dr. Brown has served on numerous technical conference committees and is presently a member of the Society of Information Display.

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Leonard Becker has been a director of ours since February 2001. For the last 40 years, Mr. Becker has been a general partner of Becker Associates, which is engaged in real estate investments and management. He currently serves on the Board of Directors of American Business Financial Services, Inc. He previously served as a director of Eagle National Bank and Cabot Medical Corporation.

Elizabeth H. Gemmill has been a director of ours since April 1997. Since March 1999, she has been Managing Trustee and, more recently, President of the Warwick Foundation. From February 1988 to March 1999, Ms. Gemmill was Vice

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President and Secretary of Tasty Baking Company. Ms. Gemmill is Chairman of the Board of Philadelphia University and serves on the Boards of Directors of Philadelphia Consolidated Holdings Corporation, Philadelphia College of Osteopathic Medicine and Metropolitan YMCA of Philadelphia and vicinity.

C. Keith Hartley has been a director of ours since September 2000. Since June 2000, he has been the President of Hartley Capital Advisors, a merchant banking firm. From August 1995 to May 2000, he was the managing partner of Forum Capital Markets LLC, an investment banking company. In the past, Mr. Hartley held the position of managing partner for Peers & Co. and Drexel Burnham Lambert, Inc. He also serves as a director of Hybridon, Inc. and Swisher International Group, Inc.

Lawrence Lacerte has been a director of ours since October 1999. Since July 1998, he has been Chairman of the Board and Chief Executive Officer of Lacerte Technology Inc., a company specializing in technology and Internet-related ventures. Prior to that time, he was the founder, Chairman of the Board and Chief Executive Officer of Lacerte Software Corp., which was sold to Intuit Corporation in June 1998.

### Board of Directors

Members of our Board of Directors do not receive cash compensation for service on the Board of Directors, or for committee service. However, as compensation for these activities they do receive shares of our common stock and options to purchase shares of our common stock, exercisable at a price equal to the fair market value of our common stock on the date of the grant. For 2003 service, non-employee members of our Board of Directors received 5,000 shares of our common stock, valued at \$84,700 on the date of grant, as well as options to purchase 25,000 shares of our common stock at an exercise price of \$16.94 per share. For service in 2003, employee members of our Board of Directors received options to purchase 10,000 shares of our common stock at an exercise price of \$16.94 per share.

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### PRINCIPAL SHAREHOLDERS

The table below sets forth information regarding the beneficial ownership of our common stock as of February 20, 2004 by:

- o each person known by us to beneficially own more than 5% of our common stock;
- o each of our named executive officers;
- o each of our directors; and
- o all of our executive officers and directors as a group.

Name and Address of Beneficial Owner (1)	Number of Shares Beneficially Owned (2)
-----	
Executive Officers and Directors	

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Sherwin I. Seligsohn (3)	707,423
Steven V. Abramson	660,061
Sidney D. Rosenblatt	614,133
Julia J. Brown, Ph.D.	310,633
Leonard Becker	135,000
Elizabeth H. Gemmill	100,500
C. Keith Hartley	112,528
Lawrence Lacerte	750,000
All executive officers and directors as a group (8 persons)	3,390,278
Five Percent Shareholders	
Scott Seligsohn (4) (5)	3,546,098
Lori S. Rubenstein (4) (6)	3,301,000
Clifford D. Schlesinger (4) (7)	3,176,250
PPG Industries, Inc. (8)	1,321,054

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\* Represents less than 1% of our outstanding common stock.

- (1) Unless otherwise indicated, the address of each beneficial owner is 375 Phillips Boulevard, Ewing, New Jersey 08618.
- (2) Unless otherwise indicated, we believe that all persons named in the table have sole voting and investment power with respect to all shares of common stock beneficially owned by them. The percentage ownership for each beneficial owner listed above is based on 24,781,720 shares of common stock outstanding as of February 20, 2004. In accordance with SEC rules, options to purchase shares of common stock that are exercisable as of February 20, 2004, or will become exercisable within 60 days thereafter, are deemed to be outstanding and beneficially owned by the person holding such options for the purpose of computing such person's percentage ownership, but are not deemed to be outstanding for the purpose of computing the percentage ownership of any other person. The numbers of shares indicated in the table includes the following number of shares issuable upon the exercise of warrants or options: Sherwin I. Seligsohn -- 405,000; Steven V. Abramson -- 530,000; Sidney D. Rosenblatt -- 427,500; Julia J. Brown -- 301,500; Leonard Becker -- 80,000; Elizabeth H. Gemmill -- 95,000; C. Keith Hartley -- 95,764; Lawrence Lacerte -- 25,000; Scott Seligsohn -- 262,750; and PPG Industries, Inc. -- 826,496.
- (3) Includes 176,000 shares of common stock owned by American Biomimetics Corporation, of which Mr. Seligsohn is the sole Director, Chairman of the Board, President and Secretary. Does not include (i) 1,500,000 shares of common stock owned by the Sherwin I. Seligsohn Irrevocable Indenture of Trust dated 7/29/93 FBO Lori S. Rubenstein (the Rubenstein Trust); (ii) 1,500,000 shares of common stock owned by the Sherwin I. Seligsohn Irrevocable Indenture of Trust dated 7/29/93 FBO Scott Seligsohn (the Seligsohn Trust); (iii) 125,000 shares of common stock owned by Lori S. Rubenstein, Mr. Seligsohn's adult daughter; and (iv) 262,750 options to purchase common stock and 107,348 shares of common stock owned by Scott Seligsohn, Mr. Seligsohn's adult son, as to which in each case Mr. Seligsohn disclaims beneficial ownership.
- (4) Includes (i) 1,500,000 shares of common stock owned by the Rubenstein Trust, of which Lori S. Rubenstein, Scott Seligsohn and Clifford D. Schlesinger are co-trustees; (ii) 1,500,000 shares of common stock owned by the Seligsohn Trust, of which Lori S. Rubenstein, Scott Seligsohn and Clifford D. Schlesinger are co-trustees; and (iii) 176,000 shares of common stock owned by American Biomimetics Corporation, of which the Rubenstein Trust and Seligsohn Trust are the principal shareholders. Mr. Schlesinger's address is 1650 Arch Street, Philadelphia, Pennsylvania 19102.
- (5) Includes (i) 262,750 options to purchase common stock; and (ii) 107,348 shares of common stock owned directly by Mr. Seligsohn.
- (6) Includes 125,000 shares of common stock owned directly by Ms. Rubenstein.

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- (7) Includes 250 shares of common stock owned jointly by Mr. Schlesinger and his wife.
- (8) According to information furnished in a Schedule 13G filed on February 18, 2004 by PPG Industries, Inc., One PPG Place, Pittsburgh, PA 15272.

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UNDERWRITING

We and the underwriters named below will enter into an underwriting agreement with respect to the shares being offered. Subject to the terms and conditions of the underwriting agreement, the underwriters named below have severally agreed to purchase from us the number of shares of our common stock set forth opposite their names on the table below at the public offering price, less the underwriting discounts and commissions, as set forth on the cover page of the prospectus supplement, as follows:

Name ----	Number of Shares -----
SG Cowen Securities Corporation .....	
Needham & Company, Inc. ....	
Harris Nesbitt Corp. ....	
 Total .....	 2,900,000 =====

The underwriting agreement provides that the obligations of the several underwriters to purchase the shares of common stock offered hereby are conditional and may be terminated at their discretion based on their assessment of the state of the financial markets. The obligations of the underwriters may also be terminated upon the occurrence of other events specified in the underwriting agreement. The underwriters are severally committed to purchase all of the shares of common stock being offered by us if any shares are purchased.

The underwriters propose to offer the shares of common stock to the public at the public offering price set forth on the cover page of the prospectus supplement. The underwriters may offer the common stock to securities dealers at the price to the public less a concession not in excess of \$\_\_\_\_\_ per share. Securities dealers may reallocate a concession not in excess of \$\_\_\_ per share to other dealers. After the shares of common stock are released for sale to the public, the underwriters may vary the offering price and other selling terms from time to time.

We have granted to the underwriters an option, exercisable not later than 30 days after the date of this prospectus supplement, to purchase up to an aggregate of 435,000 additional shares of common stock at the public offering price set forth on the cover page of the prospectus supplement less the underwriting discounts and commissions. The underwriters may exercise this option only to cover over allotments, if any, made in connection with the sale of the common stock offered hereby. If the over-allotment option is exercised in full, the underwriters will purchase additional shares of common stock from us in approximately the same proportion as shown in the table above.

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The following table summarizes the compensation to be paid to the underwriters by us and the proceeds, before expenses, payable to us:

	Per Share	Without Over Allotment	Total
	-----	-----	-----
Public offering price.....			
Underwriting discounts and commissions.....			
Proceeds, before expenses, to us.....			

We estimate that the total expenses of this offering, excluding underwriting discounts and commissions, will be approximately \$325,000.

We have agreed to indemnify the underwriters against certain civil liabilities, including liabilities under the Securities Act and liabilities arising from breaches of representations and warranties contained in the underwriting agreement, and to contribute to payments the underwriters may be required to make in respect of any such liabilities.

We, our directors, executive officers and several of our significant shareholders have agreed with the underwriters (or pursuant to agreements with us) that, for a period of 90 days following the date of this prospectus supplement, they will not offer, sell, assign, transfer, pledge, contract to sell or otherwise dispose

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of or hedge any shares of common stock or any securities convertible into or exchangeable for shares of common stock. In addition, so long as the transferee agrees to be bound by the terms of the lock-up agreement, a director, executive officer or significant shareholder may transfer his or her securities by gift, for estate planning purposes or to affiliates. SG Cowen Securities Corporation may, in its sole discretion, at any time without prior notice, release all or any portion of the shares from the restrictions in any such agreement to which SG Cowen Securities Corporation is a party.

The underwriters may engage in over allotment, stabilizing transactions, syndicate covering transactions, penalty bids and passive market making in accordance with Regulation M under the Securities Exchange Act of 1934. Over allotment involves syndicate sales in excess of the offering size, which creates a syndicate short position. Covered short sales are sales made in an amount not greater than the number of shares available for purchase by the underwriters under their over-allotment option. The underwriters may close out a covered short sale by exercising their over-allotment option or purchasing shares in the open market. Naked short sales are sales made in an amount in excess of the number of shares available under the over-allotment option. The underwriters must close out any naked short sale by purchasing shares in the open market. Stabilizing transactions permit bids to purchase the underlying security so long as the stabilizing bids do not exceed a specified maximum. Syndicate covering transactions involve purchases of the shares of common stock in the open market after the distribution has been completed in order to



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cover syndicate short positions. Penalty bids permit the representatives to reclaim a selling concession from a syndicate member when the shares of common stock originally sold by such syndicate member are purchased in a syndicate covering transaction to cover syndicate short positions. Penalty bids may have the effect of deterring syndicate members from selling to people who have a history of quickly selling their shares.

In passive market making, market makers in the shares of common stock who are underwriters or prospective underwriters may, subject to certain limitations, make bids for or purchases of the shares of common stock until the time, if any, at which a stabilizing bid is made.

These stabilizing transactions, syndicate covering transactions and penalty bids may cause the price of the shares of our common stock to be higher than it would otherwise be in the absence of these transactions. These transactions may be effected on the Nasdaq National Market or otherwise and, if commenced, may be discontinued at any time.

SG Cowen Securities Corporation received warrants to acquire 50,313 shares of our common stock in connection with acting as placement agent with respect to our registered direct offering on August 28, 2003. Harris Nesbitt Corp. received warrants to acquire 186,114 shares of our common stock in connection with acting as placement agent with respect to our private placement on August 22, 2001.

### LEGAL MATTERS

The validity of the issuance of the shares of common stock offered hereby will be passed upon by our counsel, Morgan, Lewis & Bockius LLP, Philadelphia, Pennsylvania. Brown Raysman Millstein Felder & Steiner LLP, New York, New York, is acting as counsel for the underwriters in connection with various legal matters relating to the shares of common stock offered hereby.

### EXPERTS

The consolidated financial statements of Universal Display Corporation and its subsidiary (a development stage company) as of December 31, 2003 and 2002, and for the years ended December 31, 2003 and 2002, and for the period from June 17, 1994 (inception) through December 31, 2003, have been incorporated by reference in the accompanying prospectus in reliance upon the report of KPMG LLP, independent accountants, incorporated by reference in the accompanying prospectus, and upon the authority of said firm as experts in accounting and auditing.

The consolidated financial statements of Universal Display Corporation and its subsidiary (a development stage company) as of December 31, 2001 and for the year ended December 31, 2001 to the extent related to

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the period from June 17, 1994 (inception) through December 31, 2003, were audited by Arthur Andersen LLP. Those other auditors have ceased operations. Those other auditors expressed an unqualified opinion on those consolidated financial statements in their report dated March 5, 2002. KPMG LLP's opinion on the statements of operations, shareholders' equity (deficit) and cash flows, insofar as it relates to the amounts included for the period from June 17, 1994 (inception) through December 31, 2001, is based solely on the

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report of the other auditors.

There is no effective remedy against Arthur Andersen LLP in connection with a material misstatement or omission in the financial statements audited by them, particularly in the event that Arthur Andersen ceases to exist as an entity or becomes insolvent as a result of the conviction or other proceedings against it. For more information concerning Arthur Andersen LLP, see the section entitled "Risk Factors" in this prospectus supplement.

### WHERE YOU CAN FIND MORE INFORMATION

We are subject to the informational requirements of the Securities Exchange Act of 1934, as amended. Therefore, we file reports, proxy statements and other information with, and furnish other reports to, the SEC. You can read and copy all of these documents at the SEC's public reference facilities in Washington, D.C., New York, New York and Chicago, Illinois. You may obtain information on the operation of the SEC's public reference facilities by calling the SEC at 1-800-SEC-0300. You can also read and copy all of the above-referenced documents at the offices of the Nasdaq Stock Market, 1735 K Street N.W., Washington, D.C. 20006. You also may obtain the documents we file with the SEC from the SEC's Web site on the Internet that is located at <http://www.sec.gov>.

We "incorporate by reference" in the accompanying prospectus the information we file with the SEC, which means that we can disclose important information to you by referring you to another document we file with the SEC. The information incorporated by reference in the accompanying prospectus is an important part of the accompanying prospectus, and information that we file later with the SEC will automatically update and supersede this information. We incorporate by reference in the accompanying prospectus the documents listed below and any future filings we make with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934, as amended, after the date of this prospectus supplement but before the end of this offering:

- o our annual report on Form 10-K for the fiscal year ended December 31, 2003; and
- o the description of our common stock contained in our registration statement on Form 8-A filed with the SEC on August 6, 1996.

You should read the information relating to us in this prospectus supplement and the accompanying prospectus, together with the information in the documents incorporated by reference in the accompanying prospectus.

Any statement contained in a document incorporated by reference in the accompanying prospectus, unless otherwise indicated in that document, speaks as of the date of the document. Statements contained in this prospectus supplement and the accompanying prospectus may modify or replace statements contained in the documents incorporated by reference. In addition, some of the statements contained in one or more of the documents incorporated by reference may be modified or replaced by statements contained in a document incorporated by reference that is filed thereafter.

You may request a copy of any or all of these filings, at no cost, by writing or telephoning us at Universal Display Corporation, 375 Phillips Boulevard, Ewing, New Jersey 08618, Attention: Investor Relations, Telephone: (609) 671-0980.

PROSPECTUS

\$75,325,524

[Universal Display Corporation Logo]

Common Stock  
Preferred Stock  
Warrants  
Depositary Shares

We may offer up to \$75,325,524 of our common stock, preferred stock, warrants to purchase our common stock and preferred stock and depositary shares. Our common stock is quoted on the Nasdaq National Market under the symbol ``PANL'', and is also traded on the Philadelphia Stock Exchange under the symbol ``PNL.''

We may offer these securities at prices and on terms to be set forth in one or more supplements to this prospectus. These securities may be offered directly, through agents on our behalf or through underwriters or dealers.

An investment in our securities involves significant risks. You should carefully consider the risk factors beginning on page 4 of this prospectus before investing in our securities.

The securities described in this prospectus have not been approved by the Securities and Exchange Commission or any state securities commission, nor have they determined if this prospectus is accurate or complete. Any representation to the contrary is a criminal offense.

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The date of this prospectus is February 5, 2004

CAUTIONARY STATEMENT CONCERNING FORWARD-LOOKING STATEMENTS

This prospectus and the documents incorporated by reference contain some "forward-looking statements" as defined in the Private Securities Litigation Reform Act of 1995 and information relating to us that is based on the beliefs of our management, as well as assumptions made by, and the information currently available to, our management. Among other things, these statements include, but are not limited to, the statements in this prospectus and the

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documents incorporated by reference regarding:

- o the outcomes of our ongoing and future Organic Light Emitting Device ("OLED") technology research and development activities;
- o our ability to access future OLED technology developments of our academic and commercial research partners;
- o our ability to form and continue strategic relationships with manufacturers of OLEDs and OLED-containing products;
- o the protections afforded to us by the patents that we own or license;
- o the anticipated success of our OLED technologies, materials and manufacturing equipment commercialization strategies;
- o the potential commercial applications of our OLED technologies and materials, and of OLED-containing products in general;
- o future demand for our OLED technologies and materials;
- o the comparative advantages and disadvantages of our OLED technologies and materials versus competing technologies and materials currently on the market;
- o the nature and potential advantages of any competing technologies that may be developed in the future;
- o the payments that we expect to receive in the future under our existing contracts;
- o our future capital requirements;
- o the amount and type of securities that we will issue in the future to our business partners and others; and
- o our future OLED technology licensing and OLED material sales revenues and results of operations.

In addition, when used in these documents, the words "estimate," "project," "believe," "anticipate," "intend," "expect" and similar expressions involving potential future developments are intended to identify forward-looking statements. These statements reflect our current views with respect to future events and are subject to risks and uncertainties that could cause actual results to differ materially from those contemplated in these forward-looking statements, including those risks discussed in this prospectus and the documents incorporated by reference.

You are cautioned not to place undue reliance on these forward-looking statements, which speak only as of the date of this prospectus or the documents incorporated by reference, as the case may be. Except for special circumstances in which a duty to update arises when prior disclosure becomes materially misleading in light of subsequent events, we do not intend to update any of these forward-looking statements to reflect events or circumstances after the date of this prospectus or to reflect the occurrence of unanticipated events.

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This prospectus describes certain securities of Universal Display Corporation, a Pennsylvania corporation. We sometimes refer to Universal Display Corporation, together with its wholly owned subsidiary, UDC, Inc., using the words "we," "our" or "us," or as the "Company." This prospectus is part of a registration statement that we filed with the SEC utilizing a "shelf" registration process, which allows us to offer and sell any combination of the securities described in this prospectus in one or more offerings. Using this prospectus, we may offer up to \$75,325,524 worth of securities.

This prospectus contains a general description of the securities we may offer. We will describe the specific terms of these securities, as necessary, in supplements that we attach to this prospectus for each offering. Each supplement will also contain specific information about the terms of the offering it describes. The supplements may also add, update or change information contained in this prospectus. In addition, as we describe below in the section entitled "Where You Can Find More Information," we have filed and plan to continue to file other documents with the SEC that contain information about us. Before you decide whether to invest in our securities, you should read this prospectus, the supplement that further describes the offering of those securities and the information we otherwise file with the SEC.

### WHERE YOU CAN FIND MORE INFORMATION

We file annual, quarterly and current reports, proxy statements and other information with the Securities and Exchange Commission. You may read and copy any reports, statements or other information we file at the SEC's public reference rooms located at Judiciary Plaza, 450 Fifth Street, N.W., Washington, DC 20549. Please call the SEC at 1-800-SEC-0330 for further information on the public reference rooms. Our SEC filings are also available to the public from commercial document retrieval services and at the web site maintained by the SEC at "<http://www.sec.gov>."

This prospectus is part of our "shelf" registration statement. We have filed the registration statement with the SEC under the Securities Act of 1933 to register the securities that we may offer by this prospectus and any supplements. Not all of the information in the registration statement appears in this prospectus, or will appear in any supplement. For more detail, you can read the entire registration statement, and all of the exhibits filed with it, at the SEC's offices or website as described above.

The SEC allows us to "incorporate by reference" information into this prospectus, which means that we can disclose important information to you by referring you to another document filed separately with the SEC. The information incorporated by reference is deemed to be part of this prospectus, except for any information superseded by information in this prospectus. This prospectus incorporates by reference the documents set forth below that we have previously filed with the SEC. These documents contain important information about us, our business and our finances.

The documents that we are incorporating by reference are:

- o Our Annual Report on Form 10-K for the year ended December 31, 2002;
- o Our Quarterly Reports on Form 10-Q for the quarters ended March 31, June 30 and September 30, 2003;
- o Our Current Report on Form 8-K filed with the SEC on August 25, 2003; and

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- o The description of our common stock that is contained in our Registration Statement on Form 8-A filed with the SEC on August 6, 1996.

Any documents which we file pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act after the date of this prospectus but before the end of any offering of securities made under this prospectus will also be considered to be incorporated by reference.

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If you request, either orally or in writing, we will provide you with a copy of any or all documents which are incorporated by reference. We will provide such documents to you free of charge, but will not include any exhibits, unless those exhibits are incorporated by reference into the document. You should address written requests for documents to Sidney D. Rosenblatt, Executive Vice President, Chief Financial Officer, Treasurer and Secretary, Universal Display Corporation, 375 Phillips Boulevard, Ewing, New Jersey 08618.

### RISK FACTORS

An investment in our securities involves a high degree of risk. In addition to the other information contained in this prospectus, you should carefully consider the following risk factors before making an investment decision concerning our securities. You should not purchase our securities if you cannot afford the loss of your entire investment.

#### Risks Relating to Our Business

We do not expect to be profitable in the foreseeable future, and may never be profitable.

Since inception, we have generated limited revenues while incurring significant losses. We expect to incur losses for the foreseeable future and until such time, if ever, as we are able to achieve sufficient levels of revenue from the commercial exploitation of our OLED technologies and materials to support our operations. You should note, however, that:

- o OLED technologies may never become commercially viable;
- o markets for flat panel displays utilizing OLED technologies may be limited; and
- o we may never generate sufficient revenues from the commercial exploitation of our OLED technologies and materials to become profitable.

Even if we find commercially viable applications for our OLED technologies and materials, we may never recover our research and development costs.

If we do not receive additional financing in the future, we might not be able to continue the research, development and commercialization of our OLED technologies and materials.

Our capital requirements have been and will continue to be significant. Substantial additional funds will be required in the future for research, development and commercialization of our OLED technologies and materials, to obtain and maintain patents and other intellectual property rights in these technologies and materials, and for working capital and other purposes, the timing and amount of which are difficult to ascertain. Our cash on hand may

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not be sufficient to meet all of our future obligations. When we need additional funds, such funds may not be available when needed, on commercially reasonable terms or at all. If we cannot obtain more money when needed, our business might fail. Additionally, if we attempt to raise money in an offering of shares of our common stock, preferred stock, warrants or depositary shares, or if we engage in acquisitions involving the issuance of additional shares of our common stock, preferred stock, warrants or depositary shares, the issuance of these shares will dilute our then-existing shareholders.

If our OLED technologies and materials are not feasible for broad-based product applications, we may never generate revenues sufficient to support ongoing operations.

Before OLED manufacturers will agree to utilize our OLED technologies and materials for wide-scale commercial production, it is likely that we must first demonstrate to the satisfaction of these manufacturers that our OLED technologies and materials are feasible for broad-based product applications. This, in turn, will require substantial advances in our research and development efforts in a number of areas, including:

- o device reliability;
- o the development of long-lived OLED materials for full color OLED displays; and
- o issues related to scalability and cost effective fabrication technologies for product applications.

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Our efforts may never demonstrate the feasibility of our OLED technologies and materials for broad-based product applications, particularly full color, large area, high resolution and high information content flat panel displays such as those used in televisions.

Our research and development efforts remain subject to all of the risks associated with the development of new products based on emerging and innovative technologies, including, without limitation, unanticipated technical or other problems and the possible insufficiency of funds for completing development of these products. Technical problems may result in delays and cause us to incur additional expenses that would increase our losses. If we cannot complete research and development of our OLED technologies and materials successfully, or if we experience delays in completing research and development of our OLED technologies and materials for use in potential applications, particularly after the occurrence of significant expenditures, our business may fail.

Even if our OLED technologies are technically feasible, they may not be adopted by manufacturers of OLEDs and OLED-containing products.

The potential size, timing and viability of market opportunities targeted by us are uncertain at this time. Market acceptance of our OLED technologies will depend, in part, upon these technologies providing benefits comparable to CRT and LCD technologies (the current standard display technologies) at an appropriate cost, and the adoption of these technologies by consumers, neither of which have been achieved. Also, there may be a number of additional technologies that OLED manufacturers need to utilize in order to bring OLED-containing products to the market. Many potential licensees of our OLED technologies manufacture flat panel displays utilizing competing technologies, and may, therefore, be reluctant to redesign their products or manufacturing

processes to incorporate our OLED technologies. Moreover, even if our OLED technologies are a viable alternative to competing technologies, if additional technologies are required to bring OLED-containing products to the market and potential licensees are unable to obtain access to these technologies, they may not utilize our OLED technologies.

The flat panel display industry has historically experienced significant downturns, which may adversely affect the demand for and pricing of our OLED technologies and materials.

The flat panel display industry has experienced significant, periodic downturns, often in connection with, or in anticipation of, declines in general economic conditions. These downturns have been characterized by lower product demand, production overcapacity and erosion of average selling prices. Industry-wide fluctuations and downturns could harm our business.

If our research partners fail to make advances in their research, or if they terminate their relationships with us, we might not succeed in commercializing our OLED technologies and materials.

Research and development of commercially viable applications for our OLED technologies and materials depend substantially on the success of the sponsored research conducted by our research partners. We cannot be certain that our research partners will make additional advances in the research and development of these technologies and materials. Moreover, although we fund OLED technology research, the scope of and technical aspects of this research and the resources and efforts directed to this research are in large part subject to the control of our research partners.

Our most significant research and development relationships are with Princeton University and the University of Southern California (USC). Our Research Agreement with Princeton University expires in July 2007 and both this agreement and our Amended License Agreement with Princeton University and USC (the agreement under which we license our key OLED technology patents) can be terminated for various reasons. For example, the Research Agreement provides that if Dr. Stephen Forrest, the principal investigator for our research program with Princeton University, is unavailable to continue to serve in this capacity, because he is no longer associated with Princeton University or for any other reason, and a successor acceptable to both us and Princeton University is not available, Princeton University has the right to terminate the Research Agreement without impacting the Amended License Agreement. The termination of the Research Agreement

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or the Amended License Agreement would materially and adversely affect our ability to research, develop and commercialize our OLED technologies and materials.

If we cannot form or maintain strategic relationships with companies that manufacture OLEDs and OLED-containing products, our commercialization strategy will fail.

Our strategic plan depends upon the development and maintenance of strategic licensing and material supply relationships with high-volume manufacturers of OLEDs and OLED-containing products. We have entered into only two such relationships, one with Dupont Displays, Inc. and one with Tohoku Pioneer Corporation. All of our other relationships with manufacturers of OLEDs and OLED-containing products are currently limited to research, development and pre-commercial evaluation and qualification of our OLED technologies and



materials. Our ability to enter into additional strategic licensing and supply relationships, or to maintain our existing relationships, may require us to make financial or other commitments. We might not be able, for financial or other reasons, to enter into or continue these relationships on commercially acceptable terms, or at all. Failure to do so would have a material adverse effect on us.

Our prospects also will be significantly affected by our ability to sell our proprietary OLED materials to manufacturers of OLEDs. Our current Supply Agreement with PPG Industries, Inc. provides us with a source for these OLED materials and with exclusive rights to sell them to OLED manufacturers, but this agreement expires at the end of 2007. Our inability to continue obtaining these OLED materials from PPG Industries, Inc. or another source would have a material adverse effect on our sales of OLED materials and our ability to perform and support our customers' performance of OLED technology research.

If we cannot obtain appropriate patent and other intellectual property rights protection for our OLED technologies and materials, our business will suffer.

The value of our OLED technologies and materials is dependent on our ability to secure and maintain appropriate patent and other intellectual property rights protection. Although we own or license many patents respecting our OLED technologies and materials that have already issued, there can be no assurance that additional patents applied for will be obtained, or that any of these patents, once issued, will afford commercially significant protection for our OLED technologies and materials, or will be found valid if challenged. Moreover, we have not obtained patent protection for some of our OLED technologies and materials in all foreign countries in which OLEDs might be manufactured or sold. In any event, the patent laws of other countries may differ from those of the United States as to the patentability of our OLED technologies and materials and the degree of protection afforded.

If our OLED technologies or materials are found to infringe the rights of others, we may not be able to commercially license or sell them.

Other companies and institutions may independently develop OLED technologies and materials that are equivalent or superior to ours, and may obtain patent or similar rights with respect to these technologies. There are a number of other companies and organizations that have been issued patents and are filing additional patent applications relating to OLED technologies and materials, including Eastman Kodak Company, Fuji Photo Film Co., Canon, Inc., Pioneer Corporation, Semiconductor Energy Laboratories Co. and Mitsubishi Chemical Corporation, all of whom have patent rights related to OLED technologies and materials. There can be no assurance that the utilization of our OLED technologies or the sale of our OLED materials, including technologies and materials developed by or licensed from Princeton University, the University of Southern California, PPG Industries, Inc. or Motorola, Inc., will not infringe on the patent rights of others. In this event, we or our partners may be required to obtain licenses, pay damages, modify our products or methods of operation, or be prohibited from making, using, selling or offering to sell some or all OLEDs, OLED materials and OLED-containing products. We also might not have the financial or other resources necessary to enforce or defend a patent infringement action, and the licensors of our licensed patents might not enforce or defend such an action in a timely manner. If our OLED materials or products incorporating our OLED technologies are found to infringe on the patent or other intellectual property rights of others, it could have a material adverse effect on us by limiting our ability to sell our OLED materials or license our OLED technologies to manufacturers of OLEDs and OLED-containing products.

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The U.S. Government has rights to our OLED technologies that might prevent us from realizing the benefits of these technologies.

The U.S. Government, through various government agencies, has provided and continues to provide funding to us, Princeton University and the University of Southern California for research activities related to certain aspects of our OLED technologies. Because we have been provided with this funding, the government has rights to these OLED technologies that could restrict our ability to market them to the government for military and other applications, or to third parties for commercial applications. Moreover, if the government determines that we have not taken effective steps to achieve practical application of these OLED technologies in any field of use in a reasonable time, the government could require us to grant licenses to other parties in this field of use. Any of these occurrences would limit our ability to obtain the full benefits of our OLED technologies.

There are numerous potential alternatives to OLEDs for flat panel displays, which may limit our ability to commercialize our OLED technologies and materials.

The flat panel display market is currently, and will likely continue to be for some time, dominated by products utilizing LCD technology. Numerous companies are making substantial investments in, and conducting research to improve characteristics of, LCD technology. Several other flat panel display technologies have been, or are being, developed, including technologies for the production of field emission, inorganic electroluminescence, gas plasma and vacuum fluorescent displays. Advances in LCD technology or any of these developing technologies may overcome their current limitations and permit them to become the leading technologies for flat panel displays, either of which could limit the potential market for flat panel displays utilizing our OLED technologies and materials. This, in turn, would cause manufacturers of OLEDs and OLED-containing products to avoid entering into commercial relationships with us or to terminate their existing relationships with us.

Because many of our competitors have better name-recognition and greater financial, technical, marketing and research capabilities, we may never be able to compete successfully in the flat panel display industry.

The flat panel display industry is characterized by intense competition. Substantially all of our competitors have better name recognition and greater financial, technical, marketing, personnel and research capabilities than us. Our competitors may succeed in developing technologies and applications that are more cost-effective or have fewer display limitations than our OLED technologies. We may never be able to compete successfully or develop commercial applications for our OLED technologies.

If we cannot keep our key employees or hire other talented persons as we grow, our business might not succeed.

Our performance is substantially dependent on the continued services of senior management and other key personnel, and our ability to offer competitive salaries and benefits to our employees. We do not have employment agreements with any of our management or key personnel. Additionally, competition for highly skilled technical, managerial and other personnel is intense. We might not be able to attract, hire, train, retain and motivate the highly skilled managers and employees we need to be successful. If we fail to attract and retain the necessary technical and managerial personnel, our business will suffer and might fail.

We can issue shares of preferred stock that can adversely affect your rights

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as a shareholder of our common stock.

Our Articles of Incorporation authorize us to issue up to 5,000,000 shares of preferred stock with designations, rights and preferences determined from time-to-time by our Board of Directors. Accordingly, the Board of Directors is empowered, without shareholder approval, to issue preferred stock with dividend, liquidation, conversion, voting or other rights superior to those of shareholders of our common stock. For example, an issuance of shares of preferred stock could:

- o adversely affect the voting power of the shareholders of our common stock;

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- o make it more difficult for a third party to gain control of us;
- o discourage bids for our common stock at a premium; or
- o otherwise adversely affect the market price of our common stock.

Our Board of Directors has designated and issued two series of preferred stock that are currently outstanding: (a) 200,000 shares of Series A nonconvertible preferred stock, all of which are held by an entity controlled by members of the family of Sherwin Seligsohn, our Chairman of the Board and Chief Executive Officer, and (b) 300,000 shares of Series B convertible preferred stock that is held by Motorola. The Series B convertible preferred stock is convertible into shares of common stock in accordance with our Articles of Incorporation. As of January 15, 2004, the Series B convertible preferred stock is convertible into 343,916 shares of our common stock. We may issue additional shares of authorized preferred stock at any time in the future.

The market price of our common stock might be highly volatile.

The market price of our common stock might be highly volatile, as has been the case with the securities of many other companies, particularly other small and emerging-growth companies. The following table sets forth the high and low bid quotation of our common stock as reported by the Nasdaq National Market for the periods indicated.

	High Close	Low Close
	-----	-----
2001		
First Quarter .....	\$14.13	\$ 7.03
Second Quarter .....	20.00	7.88
Third Quarter .....	16.32	6.61
Fourth Quarter .....	9.88	6.55
2002		
First Quarter .....	\$11.78	\$ 8.17
Second Quarter .....	11.80	8.30
Third Quarter .....	8.30	4.95
Fourth Quarter .....	11.60	5.76
2003		
First Quarter .....	\$ 8.70	\$ 6.33
Second Quarter .....	10.80	8.22
Third Quarter .....	10.74	8.17

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Fourth Quarter ..... 15.45 10.30

Factors such as the following may have a significant impact on the market price of our common stock in the future:

- o our expenses and operating results;
- o announcements by us or our competitors of technological developments, new product applications or license arrangements; and
- o other factors affecting the flat panel display and related industries in general.

The issuance of other publicly traded shares of our common stock could drive down the price of our stock.

The price of our common stock can be expected to decrease if:

- o other shares of our common stock that are currently subject to restriction on sale become freely salable, whether through an effective registration statement or based on Rule 144 under the Securities Act of 1933; or

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- o we issue additional shares of common stock that might be or become freely salable, including shares that would be issued upon conversion of our Series B convertible preferred stock.

If the price of our common stock goes down, we may have to issue more shares than are presently anticipated to be issued under the terms of our Development and License Agreement with PPG Industries, Inc.

Under the Development and License Agreement between us and PPG Industries, we are required to issue to PPG Industries shares of our common stock for services rendered by it. If, at the time of issuance, the price of our common stock has declined materially since the date of the Development and License Agreement, we may be required to issue to PPG Industries more shares of our common stock than were initially anticipated. This increase in the number of shares available for public sale could cause people to sell our common stock, including in short sales, which could drive down the price of our common stock, thus reducing its value and perhaps hindering our ability to raise additional funds in the future. In addition, such an increase in the number of outstanding shares of our common stock would further dilute existing holders of this stock.

Our executive officers and directors own a large percentage of our common stock and could exert significant influence over matters requiring shareholder approval, including takeover attempts.

Our executive officers and directors, and their respective affiliates, beneficially own as of January 15, 2004, approximately 11.0% of the outstanding shares of our common stock. Moreover, Pine Ridge Financial Inc. and First Investors Holding Co., Inc., as successor to Strong River Investments, Inc., assigned to our management their rights to vote the shares of our common stock issued to them upon conversion of warrants issued to them in an August 2001 private placement transaction, of which warrants to purchase 744,452 shares remain outstanding as of January 15, 2004. Accordingly, these

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shareholders and members of management may, as a practical matter, be able to exert significant influence over matters requiring approval by our shareholders, including the election of directors and the approval of mergers or other business combinations. This concentration could also have the effect of delaying or preventing a change in control of us.

Our past use of Arthur Andersen LLP as our independent auditor limits the ability of shareholders to seek potential recoveries from them related to their work.

On July 30, 2002, we announced that we had appointed KPMG LLP to replace Arthur Andersen LLP (Arthur Andersen) as our independent public auditor. Our consolidated financial statements as of and for each of the years ended December 31, 1999 through 2001 were audited by Arthur Andersen. After reasonable efforts, we were unable to obtain Arthur Andersen's consent to the incorporation by reference into the registration statement of which this prospectus supplement is a part of its report with respect to our financial statements. Under these circumstances, Rule 437a under the Securities Act of 1933 allowed us to file the registration statement without a written consent from Arthur Andersen.

The absence of this consent may limit recovery by investors in an offering made using this prospectus on certain claims. In particular, and without limitation, investors will not be able to assert claims against Arthur Andersen under Section 11 of the Securities Act of 1933. In addition, the ability of Arthur Andersen to satisfy any claims (including claims arising from Arthur Andersen's provision of auditing and other services to us) will be limited as a practical matter due to events regarding Arthur Andersen. This means that if an investor in an offering made using this prospectus were to assert a claim under Section 11 of the Securities Act relating to its investment, that investor would not be able to seek damages from Arthur Andersen. Thus, as compared to a hypothetical investor in an offering by another company whose inclusion of financial statements in its annual report was consented to by that company's independent auditor, an investor in an offering made using this prospectus would have fewer alternatives in seeking damages relating to its investment.

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### OUR COMPANY

Universal Display Corporation is engaged in the research, development and commercialization of organic light emitting device, or OLED, technologies for use in flat panel displays, lasers and light generating devices. We expect the initial market for our technologies to be in the electronic flat panel display industry. This industry includes such products as:

- o cellular phone displays;
- o portable personal digital assistants and Internet access-type devices;
- o laptop computers; and
- o television and computer monitors.

Our executive offices are located at 375 Phillips Boulevard, Ewing, New Jersey 08618. Our phone number is (609) 671-0980. Our web site can be found at [www.universaldisplay.com](http://www.universaldisplay.com).

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### SECURITIES OFFERED BY THIS PROSPECTUS

Using this prospectus, we may offer from time to time, in one or more series, together or separately, at prices and on terms to be determined at the time of offering:

- o shares of common stock, \$0.01 par value;
- o shares of preferred stock, \$0.01 par value;
- o warrants to purchase shares of common stock or preferred stock; and
- o depositary shares.

The shares of preferred stock may, at our option, be issued in the form of depositary shares evidenced by depositary receipts, and may be convertible into or exchangeable for shares of our common stock or other securities issued by us.

### USE OF PROCEEDS

Unless otherwise provided in the applicable prospectus supplement accompanying this prospectus, the net proceeds, if any, from the sale of the securities offered hereby will be used for general corporate purposes, including the acquisition or development of properties, assets, entities or technologies, and the repayment of indebtedness. As of the date of this prospectus, we have not identified as probable any specific material proposed uses of these proceeds. If, as of the date of any prospectus supplement, we have identified any such uses, we will describe them in the prospectus supplement. The amount of securities offered from time to time pursuant to this prospectus and any prospectus supplement, and the precise amount of the net proceeds we will receive from the sale of such securities, as well as the timing of receipt of those proceeds, will depend upon our funding requirements. If we elect at the time of an issuance of securities to make different or more specific uses of the proceeds than as set forth herein, we will describe those uses in the applicable prospectus supplement.

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### CERTAIN RATIOS

The ratios of our earnings to combined fixed charges and preferred stock dividends for the nine months ended September 30, 2003 and the years ended December 31, 2002, 2001, 2000, 1999 and 1998 are not meaningful because we did not have earnings during any of those periods. The dollar amount of the deficiency in each of such periods was \$11,619,623, \$31,019,201, \$16,356,100, \$9,529,046, \$5,125,006 and \$2,793,842, respectively.

For the purpose of computing the amount of our combined fixed charges and preferred stock dividends, fixed charges consist of interest costs, whether expensed or capitalized, and amortization of debt discounts. Preferred stock dividends consist of deemed dividends relating to beneficial conversion features of certain of the outstanding series of preferred stock.

### DESCRIPTION OF PREFERRED STOCK

General

The rights, preferences, privileges and restrictions of the shares of preferred stock in respect of which this prospectus is delivered, if any, shall be described in the prospectus supplement relating to those shares of preferred stock. Among the terms of the preferred stock which may be specified in the related prospectus supplement are the following:

- o the annual dividend rate, if any, or the means by which the dividend rate may be calculated, including the possibility that the dividend rate may bear an inverse relationship to some index or standard;
- o the date or dates from which dividends shall accrue, the date or dates on which dividends shall be paid and whether dividends shall be cumulative;
- o the price at which and the terms and conditions on which the series of preferred stock described in the prospectus supplement may be redeemed, including the period of time during which the shares may be redeemed, any premium to be paid over and above the par value of the preferred stock, and whether and to what extent accumulated dividends on the preferred stock will be paid upon the redemption of the shares;
- o the liquidation preference, if any, over and above the par value of the shares of preferred stock and whether and to what extent the holders of those shares shall be entitled to accumulated dividends in the event of the voluntary or involuntary liquidation, dissolution or winding-up of our affairs;
- o whether the preferred stock shall be subject to the operation of a retirement or sinking fund and, if so, a description of the operation of the retirement or sinking fund;
- o the terms and conditions, if any, on which the preferred stock may be convertible into, or exchangeable for, shares of any other class or classes of our equity interests, including the price or rate of conversion or exchange and the method for effecting the conversion or exchange;
- o a description of the voting rights, if any, of the preferred stock; and
- o other preferences, rights, qualifications or restrictions or material terms of the preferred stock.

The description of the foregoing provisions of the preferred stock as set forth in the applicable prospectus supplement is only a summary, is not complete and is subject to, and is qualified in its entirety by, reference to the definitive Articles of Amendment to our Articles of Incorporation relating to that series of preferred stock. In connection with any offering of preferred stock, the Articles of Amendment will be filed with the SEC as an exhibit to, or incorporated by reference in, the registration statement of which this prospectus is a part.

Rank

Unless otherwise specified in the applicable prospectus supplement, each series of preferred stock will, with respect to dividend rights and rights upon the liquidation, dissolution or winding up of our company or affairs,

rank:

- o senior to all classes or series of common stock, and to all equity securities ranking junior to that series of preferred stock;
- o on a parity with all equity securities issued by us, the terms of which specifically provide that those equity securities rank on a parity with that series of preferred stock; and
- o junior to all equity securities issued by us, the terms of which specifically provide that those equity securities rank senior to that series of preferred stock.

For these purposes, the term "equity securities" does not include convertible debt securities.

#### Dividends

Holders of the preferred stock of each series will be entitled to receive, when, as and if declared by our Board of Directors, out of our assets legally available for payment, cash dividends, or dividends in kind or in other property if expressly permitted and described in the applicable prospectus supplement, at the rates and on the dates as will be set forth in the applicable prospectus supplement. Each dividend shall be payable to holders of record as they appear in our shareholder records at the close of business on the record date(s) as shall be fixed by the Board of Directors.

Dividends on any series of preferred stock may be cumulative or non-cumulative, as provided in the applicable prospectus supplement. Dividends, if cumulative, will be cumulative from and after the date set forth in the applicable prospectus supplement. If the Board of Directors fails to declare a dividend payable on a dividend payment date on any series of preferred stock for which dividends are non-cumulative, then the holders of that series of preferred stock will have no right to receive a dividend in respect of the dividend period ending on that dividend payment date, and we will have no obligation to pay the dividend accrued for that period, whether or not dividends on the series are declared payable on any future dividend payment date.

Unless otherwise specified in the applicable prospectus supplement, if any shares of preferred stock of any series are outstanding, no full dividends shall be declared, paid or set apart for payment on any of our capital shares of any other series ranking, as to dividends, on a parity with or junior to the preferred stock of that series for any period unless (i) if the series of preferred stock has a cumulative dividend, full cumulative dividends on the preferred stock of that series have been or contemporaneously are declared and paid or declared and a sum sufficient for the payment thereof is set apart for payment for all past dividend periods and the then-current dividend period; or (ii) if the series of preferred stock does not have a cumulative dividend, full dividends on the preferred stock of that series for the then-current dividend period have been or contemporaneously are declared and paid, or declared and a sum sufficient for the payment thereof is set apart for payment. When dividends are not paid in full (or a sum sufficient for such full payment is not so set apart) upon preferred stock of any series, as well as on the shares of any other series of preferred stock ranking on a parity as to dividends with the preferred stock of that series, all dividends declared upon preferred stock of that series and any other series of preferred stock ranking on a parity therewith shall be declared pro rata so that the amount of dividends declared per share of preferred stock of that series and the other series of preferred stock shall in all cases bear to each other the same ratio that accrued dividends per share on the preferred stock of that series (which shall not include any accumulation in respect of unpaid dividends for prior



dividend periods if such shares of preferred stock do not have a cumulative dividend) and the other series of preferred stock bear to each other. No interest, or sum of money in lieu of interest, shall be payable in respect of any dividend payment or payments on preferred stock of any series which may be in arrears.

Except as provided in the immediately preceding paragraph, unless (i) if the series of preferred stock has a cumulative dividend, full cumulative dividends on the shares of preferred stock of that series have been or contemporaneously are declared and paid, or declared and a sum sufficient for the payment thereof set apart

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for payment, for all past dividend periods and the then-current dividend period; and (ii) if the series of preferred stock does not have a cumulative dividend, full dividends on the shares of preferred stock of that series for the then-current dividend period have been or contemporaneously are declared and paid, or declared and a sum sufficient for the payment thereof is set apart for payment, no dividends (other than in shares of common stock or other capital stock ranking junior to the shares of preferred stock of such series as to dividends and upon liquidation) shall be declared, paid or set aside for payment or other distribution upon the shares of common stock, or any other of our capital shares ranking junior to or on a parity with the preferred stock of that series as to dividends or upon liquidation, nor shall any shares of common stock, or any other of our capital shares ranking junior to or on a parity with the preferred stock of that series as to dividends or upon liquidation, be redeemed, purchased or otherwise acquired for any consideration (or any monies be paid to, or made available for, a sinking fund for the redemption of any such shares) by us, except by conversion into or exchange for other of our capital shares ranking junior to the shares of preferred stock of that series as to dividends and upon liquidation.

#### Redemption

If so provided in the applicable prospectus supplement, the preferred stock will be subject to mandatory redemption or redemption at our option, in whole or in part, in each case upon the terms, at the times and at the redemption prices set forth in the applicable prospectus supplement.

The prospectus supplement relating to a series of shares of preferred stock that is subject to mandatory redemption will specify the number of those shares of preferred stock that shall be redeemed by us in each year commencing after a date to be specified, at a redemption price per share to be specified, together with an amount equal to all accrued and unpaid dividends thereon (which shall not, if such shares of preferred stock do not have a cumulative dividend, include any accumulation in respect of unpaid dividends for prior dividend periods) to the date of redemption. The redemption price may be payable in cash or other property, as specified in the applicable prospectus supplement. If the redemption price for shares of preferred stock of any series is payable only from the net proceeds of the issuance of our capital shares, the terms of those shares of preferred stock may provide that, if no such capital shares shall have been issued or to the extent the net proceeds from any issuance are insufficient to pay in full the aggregate redemption price then due, the shares of preferred stock shall automatically and mandatorily be converted into the applicable capital shares pursuant to conversion provisions specified in the applicable prospectus supplement.

Notwithstanding the foregoing, unless (i) if the series of preferred stock has a cumulative dividend, full cumulative dividends on all shares of

preferred stock of any series shall have been or contemporaneously are declared and paid, or declared and a sum sufficient for the payment thereof is set apart for payment, for all past dividend periods and the then-current dividend period; and (ii) if the series of preferred stock does not have a cumulative dividend, full dividends of the shares of preferred stock of any series for the then-current dividend period have been or contemporaneously are declared and paid, or declared and a sum sufficient for the payment thereof is set apart for payment, no shares of preferred stock of any series shall be redeemed unless all outstanding shares of preferred stock of that series are simultaneously redeemed. The foregoing, however, shall not prevent the purchase or acquisition of shares of preferred stock of such series pursuant to a purchase or exchange offer made on the same terms to holders of all outstanding shares of preferred stock of such series. In addition, unless (i) if the series of preferred stock has a cumulative dividend, full cumulative dividends on all outstanding shares of any series of preferred stock shall have been or contemporaneously are declared and paid, or declared and a sum sufficient for the payment thereof is set apart for payment, for all past dividends periods and the then-current dividend period; and (ii) if the series of preferred stock does not have a cumulative dividend, full dividends on the shares of preferred stock of any series for the then-current dividend period have been or contemporaneously are declared and paid, or declared and a sum sufficient for the payment thereof is set apart for payment, we shall not purchase or otherwise acquire, directly or indirectly, any shares of preferred stock of that series, except by conversion into or exchange for other of our capital shares ranking junior to the shares of preferred stock of such series as to dividends and upon liquidation. The foregoing, however, shall not prevent the purchase or acquisition of shares of preferred stock of that series pursuant to a purchase or exchange offer made on the same terms to holders of all outstanding shares of preferred stock of such series.

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If fewer than all of the outstanding shares of preferred stock of any series are to be redeemed, the number of shares to be redeemed will be determined by us and those shares may be redeemed pro rata from the holders of record of those shares in proportion to the number of those shares held or for which redemption is requested by such holder (with adjustments to avoid redemption of fractional shares), or by lot in a manner determined by us.

Notice of redemption will be mailed at least 30 days, but not more than 60 days, before the redemption date to each holder of record of shares of preferred stock of any series to be redeemed at the address shown on our share transfer books. Each notice shall state:

- o the redemption date;
- o the number and series of shares of preferred stock to be redeemed;
- o the place or places where the shares of preferred stock are to be surrendered for payment of the redemption price;
- o that dividends on the shares to be redeemed will cease to accrue on the redemption date; and
- o the date upon which the holder's conversion rights, if any, as to such shares shall terminate.

If fewer than all of the shares of preferred stock of any series are to be redeemed, the notice mailed to each holder of shares of that series shall also specify the number of shares of preferred stock to be redeemed from that

holder. If notice of redemption of any shares of preferred stock has been given and if the funds necessary for redemption have been set aside by us, from and after the redemption date dividends will cease to accrue on those shares of preferred stock, and all rights of the holders of those shares will terminate, except the right to receive the redemption price.

#### Liquidation Preference

Upon any voluntary or involuntary liquidation, dissolution or winding up of our affairs, then, before any distribution or payment shall be made to the holders of any shares of our common stock or any other class or series of our capital shares ranking junior to the shares of preferred stock in the distribution of assets upon any liquidation, dissolution or winding up of our company or affairs, the holders of shares of each series of preferred stock shall be entitled to receive, out of our assets legally available for distribution to shareholders, liquidating distributions in the amount of the liquidation preference per share (as set forth in the applicable prospectus supplement), plus an amount equal to all dividends accrued and unpaid thereon (which shall not include any accumulation in respect of unpaid dividends for prior dividend periods if such shares of preferred stock do not have a cumulative dividend). After payment of the full amount of the liquidating distributions to which they are entitled, the holders of shares of preferred stock will have no right or claim to any of our remaining assets. In the event that, upon any such voluntary or involuntary liquidation, dissolution or winding up of our company or affairs, our available assets are insufficient to pay the amount of the liquidating distributions on all outstanding shares of preferred stock and the corresponding amounts payable on all shares of other classes or series of our capital shares ranking on a parity with the shares of preferred stock in the distribution of assets, then the holders of the shares of preferred stock and all other such classes or series of capital shares shall share ratably in any such distribution of assets in proportion to the full liquidating distributions to which they would otherwise be respectively entitled.

If liquidating distributions shall have been made in full to all holders of shares of preferred stock, our remaining assets shall be distributed among the holders of any other classes or series of capital shares ranking junior to the shares of preferred stock upon liquidation, dissolution or winding up of our company or affairs, according to their respective rights and preferences and in each case according to their respective number of shares. For these purposes, our consolidation or merger with or into any other corporation, trust or entity, or the sale, lease or conveyance of all or substantially all of our property or business, shall not be deemed to constitute a liquidation, dissolution or winding up of our company or affairs.

#### Voting Rights

Holders of shares of preferred stock will not have any voting rights except as indicated in the applicable prospectus supplement.

#### Conversion Rights

The terms and conditions, if any, upon which shares of any series of shares of preferred stock are convertible into shares of our common stock will be set forth in the applicable prospectus supplement relating to that series. These terms will include the number of shares of common stock into which the shares of preferred stock are convertible, the conversion price or manner of calculation thereof, the conversion period, provisions as to whether

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conversion will be at the option of the holders of the shares of preferred stock or us, the events requiring an adjustment of the conversion price and provisions affecting the conversion in the event of the redemption of that series of shares of preferred stock.

### Shareholder Liability

As discussed above under "Description of Preferred Stock - General," applicable Pennsylvania law provides that no shareholder, including holders of shares of preferred stock, shall be personally liable for our acts and obligations and that our funds and property shall be the only recourse for such acts or obligations.

### Registrar and Transfer Agent

The Registrar and Transfer Agent for the preferred stock will be set forth in the applicable prospectus supplement.

### Depository Shares

We may, at our option, elect to offer fractional shares of preferred stock, rather than full shares of preferred stock. In the event such option is exercised, we will issue receipts for depository shares, each of which will represent a fraction (to be set forth in the prospectus supplement relating to the shares of preferred stock) of a share of such shares of preferred stock.

The shares of preferred stock represented by depository shares will be deposited under a deposit agreement between us and a bank or trust company selected by us having its principal office in the United States and having a combined capital and surplus of at least \$50,000,000. Subject to the terms of the deposit agreement, each owner of a depository share will be entitled, in proportion to the applicable fraction of a preferred share represented by the depository share, to all the rights and preferences of the preferred share, represented thereby (including dividend, voting, redemption, conversion and liquidation rights).

The above description of the depository shares is only a summary, is not complete and is subject to, and is qualified in its entirety by, the description in the applicable prospectus supplement and the provisions of the deposit agreement, which will contain the form of depository receipt. A copy of the deposit agreement will be filed with the SEC as an exhibit to or incorporated by reference in the registration statement of which this prospectus is a part.

## DESCRIPTION OF WARRANTS

We may issue separately, or together with any common stock or preferred stock offered by any prospectus supplement, warrants for the purchase of other shares of common stock or preferred stock ("Warrants"). The Warrants may be issued under warrant agreements (each, a "Warrant Agreement") to be entered into between us and a bank or trust company, as warrant agent (the "Warrant Agent"), or may be represented by certificates evidencing the Warrants (the "Warrant Certificates"), all as set forth in the prospectus supplement relating to the particular series of Warrants. The following summaries of certain provisions of the Warrants do not purport to be complete and are subject to, and are qualified in their entirety by reference to, all the provisions of any related Warrant Agreement and Warrant Certificate, respectively, including the definitions therein of certain terms. Wherever defined terms of the Warrant Agreement are

summarized herein or in a prospectus supplement, it is intended that such defined terms shall be incorporated herein or therein by reference. In connection with any offering of Warrants, any such Warrant Agreement or a form of any such Warrant Certificate will be filed with the SEC as an exhibit to or incorporated by reference in the registration statement.

#### General

The prospectus supplement relating to the particular series of Warrants offered thereby will describe the terms of the offered Warrants, any related Warrant Agreements and Warrant Certificates, including the following, to the extent applicable:

- o if the Warrants are offered for separate consideration, the offering price and the currency for which Warrants may be purchased;
- o the number of shares of common stock purchasable upon exercise of common stock warrants and the price at which such number of shares of common stock may be purchased upon such exercise;
- o the date, if any, on and after which the offered warrants and the related shares of common stock will be separately transferable;
- o the date on which the right to exercise the offered Warrants shall commence and the date on which such right shall expire;
- o a discussion of the specific U.S. federal income tax, accounting and other considerations applicable to the Warrants, or to any securities purchasable upon the exercise of the Warrants;
- o whether the offered Warrants represented by Warrant Certificates will be issued in registered or bearer form, and if registered, where they may be transferred and registered;
- o any applicable anti-dilution provisions;
- o any applicable redemption or call provisions;
- o any applicable book-entry provisions; and
- o any other terms of the offered Warrants.

Warrant Certificates will be exchangeable on the terms specified in the related prospectus supplement for new Warrant Certificates of different denominations and Warrants may be exercised, as applicable, at our corporate offices, the corporate trust office of the Warrant Agent or any other office indicated in the prospectus supplement relating thereto. Prior to the exercise of their Warrants, holders of Warrants will not have any of the rights of holders of the shares of common stock purchasable upon such exercise, including the right to receive payments of dividends or distributions of any kind, if any, on the shares of common stock or preferred stock purchasable upon exercise or to exercise any applicable right to vote such shares.

#### Exercise of Warrants

Each Warrant will entitle the holder thereof to purchase such number of shares of common stock or preferred stock at such exercise price as shall in each case be set forth in, or be determinable from, the prospectus supplement

relating to such Warrant, by payment of such exercise price in full in the currency and in the manner specified in such prospectus supplement. Warrants may be exercised at any time up to the close of business on their expiration date(s) (or any later date to which we may extend such expiration date(s)); unexercised Warrants will become null and void.

Upon receipt at the corporate trust office of the Warrant Agent or any other office indicated in the related prospectus supplement of (a) payment of the exercise price and (b) the Warrant Certificate properly completed and duly executed, we will, as soon as practicable, forward the shares of common stock or preferred stock purchasable upon such exercise to the holder of such Warrant. If less than all of the Warrants represented by such Warrant Certificate are exercised, a new Warrant Certificate will be issued for the remaining number of Warrants.

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#### PLAN OF DISTRIBUTION

We may sell the securities being offered hereby: (a) directly to purchasers; (b) through agents; (c) through underwriters; (d) through dealers; or (e) through a combination of any such methods of sale.

The distribution of the securities may be effected from time to time in one or more transactions:

- o at a fixed price or at final prices, which may be changed;
- o at market prices prevailing at the time of sale;
- o at prices related to such prevailing market prices; or
- o at negotiated prices.

Offers to purchase securities may be solicited directly by us, or by agents designated by us, from time to time. Any such agent, which may be deemed to be an underwriter as that term is defined in the Securities Act of 1933, as amended (the "Securities Act"), involved in the offer or sale of the securities in respect of which this prospectus is delivered will be named, and any commissions payable by us to such agent will be set forth, in the applicable prospectus supplement.

If an underwriter is, or underwriters are, utilized in the offer and sale of securities in respect of which this prospectus and the accompanying prospectus supplement are delivered, we will execute an underwriting agreement with such underwriter(s) for the sale to it or them and the name(s) of the underwriter(s) and the terms of the transaction, including any underwriting discounts and other items constituting compensation of the underwriters and dealers, if any, will be set forth in such prospectus supplement, which will be used by the underwriter(s) to make resales of the securities in respect of which this prospectus and such prospectus supplement are delivered to the public. The securities will be acquired by the underwriters for their own accounts and may be resold from time to time in one or more transactions, including negotiated transactions, at a fixed public offering price or at varying prices determined at the time of sale. Any initial public offering price and any discounts or concessions allowed or reallocated or paid to dealers may be changed from time to time.

If a dealer is utilized in the sale of the securities in respect of which

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this prospectus is delivered, we will sell such securities to the dealer, as principal. The dealer may then resell such securities to the public at varying prices to be determined by such dealer at the time of resale. The name of the dealer and the terms of the transaction will be identified in the applicable prospectus supplement.

If an agent is used in an offering of securities being offered by this prospectus, the agent will be named, and the terms of the agency will be described, in the applicable prospectus supplement relating to the offering. Unless otherwise indicated in the prospectus supplement, an agent will act on a best efforts basis for the period of its appointment.

If indicated in the applicable prospectus supplement, we will authorize underwriters or their other agents to solicit offers by certain institutional investors to purchase securities from us pursuant to contracts providing for payment and delivery at a future date. Institutional investors with which these contracts may be made include commercial and savings banks, insurance companies, pension funds, investment companies, educational and charitable institutions and others. In all cases, these purchasers must be approved by us. The obligations of any purchaser under any of these contracts will not be subject to any conditions except that (a) the purchase of the securities must not at the time of delivery be prohibited under the laws of any jurisdiction to which that purchaser is subject, and (b) if the securities are also being sold to underwriters, we must have sold to these underwriters the securities not subject to delayed delivery. Underwriters and other agents will not have any responsibility in respect of the validity or performance of these contracts.

Certain of the underwriters, dealers or agents utilized by us in any offering hereby may be customers of, including borrowers from, engage in transactions with, and perform services for us or one or more of our affiliates in the ordinary course of business. Underwriters, dealers, agents and other persons may be entitled, under agreements which may be entered into with us, to indemnification against certain civil liabilities, including liabilities under the Securities Act of 1933, as amended.

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Until the distribution of the securities is completed, rules of the SEC may limit the ability of the underwriters and certain selling group members, if any, to bid for and purchase the securities. As an exception to these rules, the representatives of the underwriters, if any, are permitted to engage in certain transactions that stabilize the price of the securities. Such transactions may consist of bids or purchases for the purpose of pegging, fixing or maintaining the price of the securities.

If underwriters create a short position in the securities in connection with the offering thereof (in other words, if they sell more securities than are set forth on the cover page of the applicable prospectus supplement), the representatives of such underwriters may reduce that short position by purchasing securities in the open market. Any such representatives also may elect to reduce any short position by exercising all or part of any over-allotment option described in the applicable prospectus supplement.

Any such representatives also may impose a penalty bid on certain underwriters and selling group members. This means that if the representatives purchase securities in the open market to reduce the underwriters' short position or to stabilize the price of the securities, they may reclaim the amount of the selling concession from the underwriters and selling group members who sold those shares as part of the offering thereof.

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In general, purchases of a security for the purpose of stabilization or to reduce a syndicate short position could cause the price of the security to be higher than it might otherwise be in the absence of such purchases. The imposition of a penalty bid might have an effect on the price of a security to the extent that it were to discourage resales of the security by purchasers in the offering.

Neither we nor any of the underwriters, if any, makes any representation or prediction as to the direction or magnitude of any effect that the transactions described above may have on the price of the securities. In addition, neither we nor any of the underwriters, if any, makes any representation that the representatives of the underwriters, if any, will engage in such transactions or that such transactions, once commenced, will not be discontinued without notice.

The anticipated date of delivery of the securities offered by this prospectus will be described in the applicable prospectus supplement relating to the offering. The securities offered by this prospectus may or may not be listed on a national securities exchange or a foreign securities exchange. We cannot give any assurances that there will be a market for any of the securities offered by this prospectus and any prospectus supplement.

We estimate that the total expenses we will incur in offering the securities to which this prospectus relates, excluding underwriting discounts and commissions, if any, will be approximately \$400,000.

### LEGAL MATTERS

Morgan, Lewis & Bockius LLP, Philadelphia, Pennsylvania, will pass on the validity of the securities.

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### EXPERTS

The consolidated financial statements of Universal Display Corporation and subsidiary (a development stage company) as of December 31, 2002, and for the year ended December 31, 2002, and for the period from June 17, 1994 (inception) through December 31, 2002, have been incorporated by reference herein in reliance upon the report of KPMG LLP, independent accountants, incorporated by reference herein, and upon the authority of said firm as experts in accounting and auditing.

The consolidated financial statements of Universal Display Corporation and subsidiary (a development stage company) as of December 31, 2001 and for each of the years in the two-year period ended December 31, 2001, and for the period from June 17, 1994 (inception) through December 31, 2002 to the extent related to the period from June 17, 1994 (inception) through December 31, 2001, were audited by Arthur Andersen LLP. Those other auditors have ceased operations. Those other auditors expressed an unqualified opinion on those consolidated financial statements in their report dated March 5, 2002. KPMG LLP's opinion on the statements of operations, shareholders' equity (deficit) and cash flows, insofar as it relates to the amounts included for the period from June 17, 1994 (inception) through December 31, 2001, is based solely on the report of the other auditors.



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There is no effective remedy against Arthur Andersen LLP in connection with a material misstatement or omission in the financial statements audited by them, particularly in the event that Arthur Andersen ceases to exist as an entity or becomes insolvent as a result of the conviction or other proceedings against it. For more information concerning Arthur Andersen LLP, see "Risk Factors" in this Prospectus.

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2,900,000 Shares

[Universal Display Corporation Logo]

Common Stock

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PROSPECTUS SUPPLEMENT  
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SG Cowen  
Needham & Company, Inc.  
Harris Nesbitt Gerard

, 2004

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