

PROSPECTUS

TEGAL CORPORATION

36,810,000 Shares of Common Stock

This prospectus relates to shares of common stock that may be sold by the selling securityholders identified in this prospectus. Of the 36,810,000 shares covered hereby, 24,540,000 are outstanding shares held by the selling securityholders and 12,270,000 are shares reserved for issuance by us in the event a selling securityholder exercises its warrant to purchase shares of common stock. The shares issuable upon exercise of the warrants will become eligible for sale by the selling securityholders under this prospectus only as the warrants are exercised. The selling securityholders may sell their shares of common stock in a number of different ways and at varying prices. We provide more information regarding such sales in the section entitled "Plan of Distribution" beginning on page 18.

We are not selling any shares of our common stock under this prospectus and will not receive any proceeds from the sale of the shares. We will receive the proceeds from the cash exercise of warrants by the selling securityholders.

Our common stock is quoted on The Nasdaq Capital Market under the symbol "TGAL." On October 7, 2005, the last reported sale price for our common stock on The Nasdaq Capital Market was \$0.57 per share.

Investing in our common stock involves risks. See "Risk Factors" beginning on page 3.

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

The date of this prospectus is October 24, 2005.

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You should rely only on the information we have provided or incorporated by reference in this prospectus. Neither we nor the selling securityholders have authorized anyone to provide you with additional or different information. The selling securityholders are not making an offer of these securities in any jurisdiction where the offer is not permitted. You should assume that the information in this prospectus is accurate only as of the date on the cover of this prospectus and that any information we have incorporated by reference is accurate only as of the date of the document incorporated by reference. In this prospectus, unless otherwise indicated, "Tegal," "we," "us" or "our" refer to Tegal and its subsidiaries.

SUMMARY

This prospectus is part of a registration statement that we filed with the Securities and Exchange Commission utilizing a "shelf" registration process. Under this shelf process, the selling securityholders may from time to time dispose of the shares of common stock covered hereby. This prospectus provides you with a general description of the common stock covered hereby. The registration statement that contains this prospectus and the exhibits to the registration statement contain additional information about us and the securities offered under this prospectus. You should carefully read this prospectus, including any documents

incorporated herein by reference and the exhibits that are filed with the registration statement. For more information, see “Where You Can Find More Information.”

Tegal Corporation

We design, manufacture, market and service plasma etch and deposition systems that enable the production of integrated circuits, or ICs, memory and related microelectronics devices used in personal computers, wireless voice and data telecommunications, contact-less transaction devices, radio frequency identification devices, or RFID’s, smart cards, data storage and micro-level actuators. Etching and deposition constitute two of the principal IC and related device production process steps, and each must be performed numerous times in the production of such devices.

We were formed in December 1989 to acquire the operations of the former Tegal Corporation, a division of Motorola, Inc., or Motorola. Our predecessor company was founded in 1972 and acquired by Motorola in 1978. We completed our initial public offering in October 1995.

On August 30, 2002, we acquired all of the outstanding common stock of Sputtered Films, Incorporated, or SFI, a privately held California corporation. SFI is a leader in the design, manufacture and service of high performance physical vapor deposition sputtering systems for the semiconductor and semiconductor packaging industry. SFI was founded in 1967 with the development of its core technology, the S-Gun.

On November 11, 2003, we acquired substantially all of the assets and certain liabilities of Simplus Systems Corporation, or Simplus, a development stage company. Simplus had developed a deposition cluster tool and certain patented processes for barrier, copper seed and high-K dielectric applications. Simplus had coined the term “nano-layer deposition” or “NLD” to describe its unique approach to molecular organic chemical vapor deposition, or MOCVD. We are continuing to develop these NLD processes and related tools, and are in the process of marketing them to a limited number of key customers and joint development partners.

On May 28, 2004, we purchased substantially all of the assets and assumed certain liabilities of First Derivative Systems, Inc., or FDSI. FDSI, a privately held development stage company, was founded in 1999 as a spin-off of SFI. FDSI had developed a high-throughput, low cost-of-ownership physical vapor deposition, or PVD, system with highly differentiated technology for leading edge memory and logic device production on 200- and 300-millimeter wafers.

Our executive offices are located at 2201 South McDowell Boulevard, Petaluma, California 94954, and our telephone number is (707) 763-5600. All service marks, brand names or trademarks appearing in this prospectus that do not belong to us are the property of their respective holders.

Shares Offered by the Selling Securityholders

Effective July 6, 2005, we entered into a Purchase Agreement with the selling securityholders pursuant to which we may issue and sell to them up to an aggregate of 34,615,385 shares of our common stock at a purchase price of \$0.65 per share and warrants to purchase an aggregate of 17,307,694 shares of our common stock at an exercise price of \$1.00 per share. All of these securities were sold or will be sold in a private placement pursuant to Regulation D of the Securities Act of 1933, as amended, or the Act, solely to accredited investors, as defined in Rule 501 of the Act. We refer to this financing transaction in this prospectus as the “2005 PIPE.”

In the initial closing of the 2005 PIPE, on July 12, 2005, we sold 6,300,000 shares at a purchase price of \$0.65 per share and five-year warrants to purchase an aggregate of 3,150,000 shares of common stock at an exercise price of \$1.00 per share to the selling securityholders at an aggregate purchase price of \$4,095,000.

As part of the second closing of the 2005 PIPE, on September 19, 2005, we sold 24,540,000 shares at a purchase price of \$0.65 per share and five-year warrants to purchase an aggregate of 12,270,000 shares of common stock at an exercise price of \$1.00 per share to the selling securityholders for an aggregate purchase price of \$15,951,000. This prospectus covers the resale by the selling securityholders of the shares of common stock and the shares of common stock issuable upon exercise of the warrants that were issued in the second closing of the 2005 PIPE.

The warrant issued to each selling securityholder is for an amount up to 50% of the number of shares of common stock purchased by such selling securityholder in the 2005 PIPE. The exercise price is \$1.00 per share of common stock purchased, subject to adjustment in the specified instances.

As of September 19, 2005, there were approximately 83,944,613 shares of our common stock outstanding.

RISK FACTORS

Investing in our common stock involves a significant amount of risk. You should carefully consider the following risk factors, in addition to the other information set forth in this prospectus and incorporated in this prospectus by reference to our Annual Report on Form 10-K for the fiscal year ended March 31, 2005, our Quarterly Report 10-Q for first quarter ended June 30, 2005, and our other filings with the Securities and Exchange Commission before deciding to purchase our common stock.

We have incurred operating losses and may not be profitable in the future; Our plans to maintain and increase liquidity may not be successful; The report of the independent registered public accounting firm includes a going concern uncertainty explanatory paragraph.

We incurred net losses of \$15.4 million, \$12.6 million and \$12.6 million for the years ended March 31, 2005, 2004 and 2003, respectively, and generated negative cash flows from operations of \$7.5 million, \$3.2 million and \$6.0 million in these respective years. These factors raise substantial doubt as to our ability to continue as a going concern, and our independent registered public accounting firm has included a going concern uncertainty explanatory paragraph in their report dated May 27, 2005 filed with our Annual Report on Form 10-K/A for the year ended March 31, 2005. We have raised approximately \$20.0 million from the sale of stock and warrants to the selling securityholders in the initial closing in July 2005 and the second closing in September 2005. During fiscal year 2005, we raised approximately \$10.4 million from stock issued to Kingsbridge. Management believes that these proceeds, combined with a projected increase in sales, consolidation of certain operations and continued cost containment will be adequate to fund operations for the next twelve months. However, these projected sales are to a limited number of new and existing customers and are based, for the most part, on internal and customer provided estimates of future demand, not firm customer orders. If the projected sales do not materialize, we will need to reduce expenses further and raise additional capital through the issuance of debt or equity securities. If additional funds are raised through the issuance of preferred stock or debt, these securities could have rights, privileges or preferences senior to those of our common stock, and debt covenants could impose restrictions on our operations. Moreover, such financing may not be available to us on acceptable terms, if at all. Failure to raise additional funds may adversely affect our ability to achieve our intended business objectives. Our consolidated financial statements do not include any adjustments relating to the recoverability and classification of recorded assets or the amount or classification of liabilities or any other adjustments that might be necessary should we be unable to continue as a going concern.

The exercise of outstanding warrants, options and other rights to obtain additional shares will dilute the value of our shares of common stock and could cause the price of our shares of common stock to decline.

As of September 19, 2005, there were 83,944,613 shares of our common stock issued and outstanding and there were 25,006,559 shares of common stock reserved for issuance under our equity incentive and stock purchase plans.

As of September 19, 2005, there were warrants exercisable for approximately 3,150,000 shares of our common stock from the initial closing of the 2005 PIPE and 12,270,000 shares of our common stock from the second closing of the 2005 PIPE. In addition, we have warrants outstanding from previous offerings for approximately 4,093,603 shares of our common stock and options and restricted stock units exercisable for approximately 7,959,616, shares of our common stock. In addition, the stockholders approved an increase to the number of authorized shares of common stock from 100,000,000 to 200,000,000 shares. We may issue additional capital stock, convertible securities and/or warrants to raise capital in the future. In addition, to attract and retain key personnel, we may issue additional securities, including stock options.

The exercise of these warrants and options and the issuance of the common stock pursuant to our equity incentive plans will result in dilution in the value of the shares of our outstanding common stock and the voting power represented thereby. In addition, the exercise price of the warrants may be lowered under the price adjustment provisions in the event of a "dilutive issuance," that is, if we issue common stock at any time prior to their maturity at a per share price below such conversion or exercise price, either directly or in connection with the issuance of securities that are convertible into, or exercisable for, shares of our common stock. A reduction in the exercise price may result in the issuance of a significant number of additional shares upon the exercise of the warrants.

The warrants do not establish a "floor" that would limit reductions in such conversion price or exercise price. The downward adjustment of the exercise price of these warrants could result in further dilution in the value of the shares of our outstanding common stock and the voting power represented thereby.

No prediction can be made as to the effect, if any, that future sales of shares of our common stock, or the availability of shares for future sale, will have on the market price of our common stock prevailing from time to time. Sales of substantial amounts of shares of our common stock in the public market, or the perception that such sales could occur, may adversely affect the market price of our common stock and may make it more difficult for us to sell our equity securities in the future at a time and price which we deem appropriate.

To the extent the selling securityholders and the other holders of our warrants and options exercise such securities and then sell the shares of our common stock they receive upon exercise, our stock price may decrease due to the additional amount of shares available in the market. The subsequent sales of these shares could encourage short sales by our securityholders and others, which could place further downward pressure on our stock price. Moreover, holders of these warrants and options may hedge their positions in our common stock by shorting our common stock, which could further adversely affect our stock price.

If we fail to meet the continued listing requirements of the Nasdaq Stock Market, our stock could be delisted .

Our stock is currently listed on The Nasdaq Capital Market. The Nasdaq Stock Market's Marketplace Rules impose certain minimum financial requirements on us for the continued listing of our stock. One such requirement is the minimum bid price on our stock of \$1.00 per share. Beginning in 2002, there have been periods of time during which we have been out of compliance with the \$1.00 minimum bid requirements of The Nasdaq Capital Market.

On August 18, 2005, we were notified by the Nasdaq that the bid price of our common stock closed below the minimum \$1.00 per share requirement for continued inclusion under the Nasdaq's marketplace rules. We have 180 calendar days, or until February 13, 2006, to regain compliance. If, at anytime before February 13, 2006, the bid price of our common stock closes at \$1.00 per share or more for a minimum of 10 consecutive business days, we will regain compliance with the Nasdaq's marketplace rules. If we do not regain compliance by February 13, 2006, an additional 180 days will be granted to regain compliance, so long as we meet the Nasdaq Capital Market initial listing criteria (except for the bid price requirement).

If we are unable to regain compliance or fall out of compliance in the future with Nasdaq listing requirements, we may take actions in order to achieve compliance, which actions may include a reverse split of our common stock. If an initial delisting decision is made by the Nasdaq's staff, we may appeal the decision as permitted by Nasdaq rules. If we are delisted and cannot obtain listing on another major market or exchange, our stock's liquidity would suffer, and we would likely experience reduced investor interest. Such factors may result in a decrease in our stock's trading price. Delisting also may restrict us from issuing additional securities or securing additional financing.

The semiconductor industry is cyclical and may experience periodic downturns that may negatively affect customer demand for our products and result in losses such as those experienced in the past.

Our business depends upon the capital expenditures of semiconductor manufacturers, which in turn depend on the current and anticipated market demand for integrated circuits. The semiconductor industry is highly cyclical and historically has experienced periodic downturns, which often have had a detrimental effect on the semiconductor industry's demand for semiconductor capital equipment, including etch and deposition systems manufactured by us. In response to the current prolonged industry slow-down, we have initiated a substantial cost containment program and completed a corporate-wide restructuring to preserve our cash. However, the need for continued investment in research and development, possible capital equipment requirements and extensive ongoing customer service and support requirements worldwide will continue to limit our ability to reduce expenses in response to these downturns. As a result, we may continue to experience operating losses such as those we have experienced in the past, which could materially adversely affect us.

Our competitors have greater financial resources and greater name recognition than we do and therefore may compete more successfully in the semiconductor capital equipment industry than we can.

We believe that to be competitive, we will require significant financial resources in order to offer a broad range of systems, to maintain customer service and support centers worldwide and to invest in research and development. Many of our existing and potential competitors, including, among others, Applied Materials, Inc., Lam Research Corporation, Novellus and Tokyo Electron Limited, have substantially greater financial resources, more extensive engineering, manufacturing, marketing and customer service and support capabilities, larger installed bases of current generation etch, deposition and other production equipment and broader process equipment offerings, as well as greater name recognition than we do. We cannot assure you that we will be able to compete successfully against these companies in the United States or worldwide.

We depend on sales of our advanced products to customers that may not fully adopt our product for production use.

We have designed our advanced etch and deposition products for customer applications in emerging new films, polysilicon and metal which we believe to be the leading edge of critical applications for the production of advanced semiconductor and other microelectronic devices. Revenues from the sale of our advanced etch and deposition systems accounted for 30%, 40% and 25% of total revenues in fiscal 2005, 2004 and 2003, respectively. Our advanced systems are currently being used primarily for research and development activities or low volume production. For our advanced systems to achieve full market adoption, our customers must utilize these systems for volume production. We cannot assure you that the market for devices incorporating emerging films, polysilicon or metal will develop as quickly or to the degree we expect. If our advanced systems do not achieve significant sales or volume production due to a lack of full customer adoption, our business, financial condition, results of operations and cash flows will be materially adversely affected.

Our potential customers may not adopt our products because of their significant cost or because our potential customers are already using a competitor's tool.

A substantial investment is required to install and integrate capital equipment into a semiconductor production line. Additionally, we believe that once a device manufacturer has selected a particular vendor's capital equipment, that manufacturer generally relies upon that vendor's equipment for that specific production line application and, to the extent possible, subsequent generations of that vendor's systems. Accordingly, it may be extremely difficult to achieve significant sales to a particular customer once that customer has selected another vendor's capital equipment unless there are compelling reasons to do so, such as significant performance or cost advantages. Any failure to gain access and achieve sales to new customers will adversely affect the successful commercial adoption of our products and could have a detrimental effect on us.

Our quarterly operating results may continue to fluctuate.

Our revenue and operating results have fluctuated and are likely to continue to fluctuate significantly from quarter to quarter, and we cannot assure you that we will achieve profitability in the future.

Our 900 series etch systems typically sell for prices ranging between \$250,000 and \$600,000, while prices of our 6500 series critical etch systems and our Endeavor deposition system typically range between \$1.8 million and \$3.0 million. To the extent we are successful in selling our 6500 and Endeavor series systems, the sale of a small number of these systems will probably account for a substantial portion of revenue in future quarters, and a transaction for a single system could have a substantial impact on revenue and gross margin for a given quarter.

Other factors that could affect our quarterly operating results include:

- our timing of new systems and technology announcements and releases and ability to transition between product versions;
- seasonal fluctuations in sales;
- changes in the mix of our revenues represented by our various products and customers;
- adverse changes in the level of economic activity in the United States or other major economies in which we do business;
- foreign currency exchange rate fluctuations;
- expenses related to, and the financial impact of, possible acquisitions of other businesses; and
- changes in the timing of product orders due to unexpected delays in the introduction of our customers' products, due to lifecycles of our customers' products ending earlier than expected or due to market acceptance of our customers' products.

Some of our sales cycles are lengthy, exposing us to the risks of inventory obsolescence and fluctuations in operating results.

Sales of our systems depend, in significant part, upon the decision of a prospective customer to add new manufacturing capacity or to expand existing manufacturing capacity, both of which typically involve a significant capital commitment. We often experience delays in finalizing system sales following initial system qualification while the customer evaluates and receives approvals for the purchase of our

systems and completes a new or expanded facility. Due to these and other factors, our systems typically have a lengthy sales cycle (often 12 to 18 months in the case of critical etch and deposition systems) during which we may expend substantial funds and management effort. Lengthy sales cycles subject us to a number of significant risks, including inventory obsolescence and fluctuations in operating results over which we have little or no control.

Because technology changes rapidly, we may not be able to introduce our products in a timely enough fashion.

The semiconductor manufacturing industry is subject to rapid technological change and new system introductions and enhancements. We believe that our future success depends on our ability to continue to enhance our existing systems and their process capabilities, and to develop and manufacture in a timely manner new systems with improved process capabilities. We may incur substantial unanticipated costs to ensure product functionality and reliability early in our products' life cycles. We cannot assure you that we will be successful in the introduction and volume manufacture of new systems or that we will be able to develop and introduce, in a timely manner, new systems or enhancements to our existing systems and processes which satisfy customer needs or achieve market adoption.

Our financial performance may adversely affect the morale and performance of our personnel and our ability to hire new personnel.

Our common stock has declined in value below the exercise price of many options granted to employees pursuant to our stock option plans. Thus, the intended benefits of the stock options granted to our employees, the creation of performance and retention incentives, may not be realized. As a result, we may lose employees whom we would prefer to retain. As a result of these factors, our remaining personnel may seek employment with larger, more established companies or companies perceived as having less volatile stock prices.

Provisions in our agreements, charter documents, stockholder rights plan and Delaware law may deter takeover attempts, which could decrease the value of your shares.

Our certificate of incorporation and bylaws and Delaware law contain provisions that could make it more difficult for a third party to acquire us without the consent of our board of directors. Our board of directors has the right to issue preferred stock without stockholder approval, which could be used to dilute the stock ownership of a potential hostile acquirer. Delaware law imposes some restrictions on mergers and other business combinations between us and any holder of 15% or more of our outstanding common stock. In addition, we have adopted a stockholder rights plan that makes it more difficult for a third party to acquire us without the approval of our board of directors. These provisions apply even if the offer may be considered beneficial by some of our stockholders.

We may not be able to protect our intellectual property or obtain licenses for third parties' intellectual property and therefore we may be exposed to liability for infringement or the risk that our operations may be adversely affected.

Although we attempt to protect our intellectual property rights through patents, copyrights, trade secrets and other measures, we may not be able to protect our technology adequately and competitors may be able to develop similar technology independently. Additionally, patent applications that we may file may not be issued and foreign intellectual property laws may not protect our intellectual property rights. There is also a risk that patents licensed by or issued to us will be challenged, invalidated or circumvented and that the rights granted thereunder will not provide competitive advantages to us. Furthermore, others may independently develop similar systems, duplicate our systems or design around the patents licensed by or issued to us.

Litigation could result in substantial cost and diversion of effort by us, which by itself could have a detrimental effect on our financial condition, operating results and cash flows. Further, adverse determinations in such litigation could result in our loss of proprietary rights, subject us to significant liabilities to third parties, require us to seek licenses from third parties or prevent us from manufacturing or selling our systems. In addition, licenses under third parties' intellectual property rights may not be available on reasonable terms, if at all.

Our customers are concentrated and therefore the loss of a significant customer may harm our business.

Our top five customers accounted for 80.0%, 84.8% and 88.2% of our systems revenues in fiscal 2005, 2004 and 2003, respectively. Three customers each accounted for more than 10% of net systems sales in fiscal 2005. Although the composition of the group comprising our largest customers may vary from year to year, the loss of a significant customer or any reduction in orders by any significant customer, including reductions due to market, economic or competitive conditions in the semiconductor manufacturing industry, may have a detrimental effect on our business, financial condition, results of operations and cash flows. Our ability to increase our sales in the future will depend, in part, upon our ability to obtain orders from new customers, as well as the financial condition and success of our existing customers and the general economy, which is largely beyond our ability to control.

We are exposed to additional risks associated with international sales and operations.

International sales accounted for 70%, 67% and 66% of total revenue for fiscal 2005, 2004 and 2003, respectively. International sales are subject to certain risks, including the imposition of government controls, fluctuations in the U.S. dollar (which could increase the sales price in local currencies of our systems in foreign markets), changes in export license and other regulatory requirements, tariffs and other market barriers, political and economic instability, potential hostilities, restrictions on the export or import of technology, difficulties in accounts receivable collection, difficulties in managing representatives, difficulties in staffing and managing international operations and potentially adverse tax consequences. We cannot assure you that any of these factors will not have a detrimental effect on our operations, financial results and cash flows.

We generally attempt to offset a portion of our U.S. dollar denominated balance sheet exposures subject to foreign exchange rate remeasurement by purchasing forward currency contracts for future delivery. We cannot assure you that our future results of operations and cash flows will not be adversely affected by foreign currency fluctuations. In addition, the laws of certain countries in which our products are sold may not provide our products and intellectual property rights with the same degree of protection as the laws of the United States.

Evolving regulation of corporate governance and public disclosure may result in additional expenses and continuing uncertainty.

Changing laws, regulations and standard relating to corporate governance and public disclosure, including the Sarbanes-Oxley Act of 2002, new SEC regulations and Nasdaq Market rules are creating uncertainty for public companies. We continually evaluate and monitor developments with respect to new and proposed rules and cannot predict or estimate the amount of the additional costs we may incur or the timing of such costs. These new or changed laws, regulations and standards are subject to varying interpretations, in many cases due to their lack of specificity, and as a result, their application in practice may evolve over time as new guidance is provided by regulatory and governing bodies. This could result in continuing uncertainty regarding compliance matters and higher costs necessitated by ongoing revisions to disclosure and governance practices. We are committed to maintaining high standards of corporate governance and public disclosure. As a result, we have invested resources to comply with evolving laws, regulations and standards, and this investment may result in increased general and administrative expenses and a diversion of management time and attention from revenue-generating activities to compliance activities. If our efforts to comply with new or changed laws, regulations and standards differ from the activities intended by regulatory or governing bodies due to ambiguities related to practice, regulatory authorities may initiate legal proceedings against us and we may be harmed.

Our stock price is volatile and could result in a material decline in the value of your investment in Tegal.

We believe that factors such as announcements of developments related to our business, fluctuations in our operating results, sales of our common stock into the marketplace, failure to meet or changes in analysts' expectations, general conditions in the semiconductor industry or the worldwide economy, announcements of technological innovations or new products or enhancements by us or our competitors, developments in patents or other intellectual property rights, developments in our relationships with our customers and suppliers, natural disasters and outbreaks of hostilities could cause the price of our common stock to fluctuate substantially. In addition, in recent years the stock market in general, and the market for shares of small capitalization stocks in particular, have experienced extreme price fluctuations, which have often been unrelated to the operating performance of affected companies. We cannot assure you that the market price of our common stock will not experience significant fluctuations in the future, including fluctuations that are unrelated to our performance.

Potential disruption of our supply of materials required to build our systems could have a negative effect on our operations and damage our customer relationships.

Materials delays have not been significant in recent years. Nevertheless, we procure certain components and sub-assemblies included in our systems from a limited group of suppliers, and occasionally from a single source supplier. For example, we depend on MECS Corporation, a robotic equipment supplier, as the sole source for the robotic arm used in all of our 6500 series systems. We currently have no existing supply contract with MECS Corporation, and we currently purchase all robotic assemblies from MECS Corporation on a purchase order basis. Disruption or termination of certain of these sources, including our robotic sub-assembly source, could have an adverse effect on our operations and damage our relationship with our customers.

Any failure by us to comply with environmental regulations imposed on us could subject us to future liabilities.

We are subject to a variety of governmental regulations related to the use, storage, handling, discharge or disposal of toxic, volatile or otherwise hazardous chemicals used in our manufacturing process. We believe that we are currently in compliance in all material respects with these regulations and that we have obtained all necessary environmental permits generally relating to the discharge of hazardous wastes to conduct our business. Nevertheless, our failure to comply with present or future regulations could result in additional or corrective operating costs, suspension of production, alteration of our manufacturing processes or cessation of our operations.

FORWARD-LOOKING STATEMENTS

This prospectus includes or incorporates by reference forward-looking statements within the meaning of Section 27A of the Securities Act and Section 21E of the Exchange Act. Forward-looking statements, which are based on assumptions and describe our future plans, strategies and expectations, are generally identifiable by the use of the words "anticipate," "believe," "estimate," "expect," "intend," "project," or similar expressions. These forward-looking statements are subject to risks, uncertainties and assumptions about us. Important factors that could cause actual results to differ materially from the forward-looking statements we make in this prospectus are set forth under the caption "Risk Factors" and elsewhere in this prospectus and the documents incorporated by reference in this prospectus. If one or more of these risks or uncertainties materialize, or if any underlying assumptions prove incorrect, our actual results, performance or achievements may vary materially from any future results, performance or achievements expressed or implied by these forward-looking statements. All forward-looking statements attributable to us or persons acting on our behalf are expressly qualified in their entirety by the cautionary statements in this paragraph.

USE OF PROCEEDS

The selling securityholders will receive all of the proceeds from the sale of the common stock covered under this prospectus. We will not receive any proceeds from these dispositions. We will receive the proceeds from the cash exercise of warrants by the selling securityholders. Assuming all of the warrants were exercised, we would receive gross proceeds of approximately \$12.3 million. We intend to use any proceeds from the exercise of the warrants for general corporate purposes and working capital.

SELLING SECURITYHOLDERS

The shares of common stock covered by this prospectus were issued in the second closing of the 2005 PIPE pursuant to transactions exempt from the registration requirements of the Securities Act. The shares are being registered to permit public secondary trading of the shares, and the selling securityholders, including their transferees, pledges, donees or their successors, may sell the shares or interests

therein from time to time. See “Plan of Distribution.” In accordance with registration rights granted to the selling securityholders, we have filed with the Securities and Exchange Commission, under the Securities Act, a registration statement on Form S-3, of which this prospectus forms a part, with respect to the sale of the shares of common stock from time to time on The Nasdaq Capital Market, in privately-negotiated transactions, or otherwise, and have agreed to prepare and file such amendments and supplements to the registration statement as may be necessary to keep such registration statement effective until the shares are no longer required to be registered for the sale thereof by the selling securityholders.

The following table sets forth information, as of September 19, 2005, regarding the shares of common stock beneficially owned by each selling securityholder that may be offered pursuant to this prospectus. The information is based on information provided by or on behalf of the selling securityholders. The selling securityholders may offer all, some or none of the common stock. Because the selling securityholders may offer all or some portion of the common stock, we cannot estimate the amount of the common stock that will be held by the selling securityholders upon termination of any of these sales. In addition, the selling securityholders identified below may have sold, transferred or otherwise disposed of all or a portion of their common stock since the date on which they provided the information regarding their common stock in transactions exempt from the registration requirements of the Securities Act.

Information concerning other selling securityholders will be set forth in prospectus supplements or post-effective amendments to this prospectus from time to time, if required. Information concerning the securityholders may change from time to time and any changed information will be set forth in prospectus supplements or post-effective amendments to this prospectus if and when necessary. Except as disclosed in the footnotes to the table, Tegal has no relationship with the selling securityholders prior to the issuance of the common stock.

Name of Selling Securityholder	Shares of Common Stock Beneficially Owned prior to Second Closing	Shares of Common Stock Offered for Resale under this Prospectus	Total Shares of Common Stock Beneficially Owned after the Second Closing(1)	Percentage of Outstanding Stock Beneficially Owned after the Second Closing(1)
Special Situations Fund, III, L.P.(2)	2,242,800	10,080,278	12,323,077(3)	14.00%
Special Situations Cayman Fund, L.P.(2)	567,000	2,548,385	3,115,385(4)	3.67%
Special Situations Private Equity Fund, L.P.(2)	1,330,583	2,627,667	3,958,250(5)	4.62%
Special Situations Technology Fund, L.P.(2)	195,445	496,463	691,908(6)	*
Special Situations Technology Fund II, L.P.(2)	1,128,978	3,124,131	4,253,109(7)	4.97%
Iroquois Capital	840,000	3,775,385	4,615,385(8)	5.40%
Bonanza Master Fund Ltd.	1,680,000	7,550,769	9,230,769(9)	10.61%
Trimble Place	1,050,000	4,719,231	5,769,231(10)	6.72%
SRB Greenway Offshore Operating Fund, L.P.(11)	28,846	130,154	159,000(12)	*
SRB Greenway Capital (QP), L.P.(11)	345,692	1,553,309	1,899,000(13)	2.25%
SRB Greenway Capital, L.P.(11)	45,462	204,231	249,693(14)	*
TOTAL	9,454,806	36,810,000	46,264,807(15)	55.0%

* Represents beneficial ownership of less than 1%.

- (1) Based on Rule 13d-3(d)(i) under the Securities Exchange Act of 1934 using 83,944,613 shares of common stock outstanding on September 19, 2005. The number of shares of common stock outstanding used in calculating the percentage for each selling securityholder includes common stock underlying the warrants held by the selling securityholder, but excludes common stock underlying warrants held by any other selling securityholder.
- (2) MGP Advisors Limited (“MGP”) is the general partner of Special Situations Fund III, L.P. AWM Investment Company, Inc. (“AWM”) is the general partner of MGP and the general partner of and investment adviser to the Special Situations Cayman Fund, L.P. SST Advisers, L.L.C. (“SSTA”) is the general partner of and investment adviser to the Special Situations Technology Fund, L.P. and the Special Situations Technology Fund II, L.P. MG Advisers, L.L.C. (“MG”) is the general partner of and investment adviser to the Special Situations Private Equity Fund, L.P. Austin W. Marx and David M. Greenhouse are the principal owners of MGP, AWM, SSTA and MG. Through the control of MGP, AWM, SSTA and MG, Messrs. Marx and Greenhouse share voting and investment control over the portfolio securities of each of the funds listed above.
- (3) Includes 1,495,200 shares of common stock and 747,600 shares of common stock underlying a warrant issued in the initial closing of the 2005 PIPE and 6,720,185 additional shares of common stock and warrants to purchase an additional 3,360,092 shares of common stock issued in the second closing of the 2005 PIPE and offered for resale under this prospectus.
- (4) Includes 378,000 shares of common stock and 189,000 shares of common stock underlying a warrant issued in the initial closing of the 2005 PIPE and 1,698,923 additional shares of common stock and warrants to purchase an additional 849,462 shares of common stock issued in the second closing of the 2005 PIPE and offered for resale under this prospectus.

- (5) Includes 389,760 shares of common stock and 194,880 shares of common stock underlying a warrant issued in the initial closing of the 2005 PIPE and 1,751,778 additional shares of common stock and warrants to purchase an additional 875,889 shares of common stock issued in the second closing of the 2005 PIPE and offered for resale under this prospectus.
- (6) Includes 73,640 shares of common stock and 36,820 shares of common stock underlying a warrant issued in the initial closing of the 2005 PIPE and 330,975 additional shares of common stock and warrants to purchase an additional 165,448 shares of common stock issued in the second closing of the 2005 PIPE and offered for resale under this prospectus.
- (7) Includes 463,400 shares of common stock and 231,700 shares of common stock underlying a warrant issued in the initial closing of the 2005 PIPE and 2,082,754 additional shares of common stock and warrants to purchase an additional 1,041,377 shares of common stock issued in the second closing of the 2005 PIPE and offered for resale under this prospectus.
- (8) Includes 560,000 shares of common stock and 280,000 shares of common stock underlying a warrant issued in the initial closing of the 2005 PIPE and 2,516,923 additional shares of common stock and warrants to purchase an additional 1,258,462 shares of common stock issued in the second closing of the 2005 PIPE and offered for resale under this prospectus. Joshua Silverman is the beneficial owner or control person for Iroquois Capital.
- (9) Includes 1,120,000 shares of common stock and 560,000 shares of common stock underlying a warrant issued in the initial closing of the 2005 PIPE and 5,033,846 additional shares of common stock and warrants to purchase an additional 2,516,923 shares of common stock issued in the second closing of the 2005 PIPE and offered for resale under this prospectus. Brian Ladin is the beneficial owner or control person for Bonanza Master Fund Ltd.
- (10) Includes 700,000 shares of common stock and 350,000 shares of common stock underlying a warrant issued in the initial closing of the 2005 PIPE and 3,146,154 additional shares of common stock and warrants to purchase an additional 1,573,077 shares of common stock issued in the second closing of the 2005 PIPE and offered for resale under this prospectus. Ernie Dahlman is the beneficial owner or control person for Trimble Place. Mr. Dahlman is a principal of Dahlman, Rose & Co., LLC, who acted as our financial advisor in this transaction, and who has also acted as our financial advisor in previous transactions.
- (11) Steven Becker is the beneficial owner or control person for Greenway Capital.
- (12) Includes 19,231 shares of common stock and 9,615 shares of common stock underlying a warrant issued in the initial closing of the 2005 PIPE and 86,769 additional shares of common stock and warrants to purchase an additional 43,385 shares of common stock issued in the second closing of the 2005 PIPE and offered for resale under this prospectus.
- (13) Includes 230,461 shares of common stock and 115,231 shares of common stock underlying a warrant issued in the initial closing of the 2005 PIPE and 1,035,539 additional shares of common stock and warrants to purchase an additional 517,769 shares of common stock issued in the second closing of the 2005 PIPE and offered for resale under this prospectus.
- (14) Includes 30,308 shares of common stock and 15,154 shares of common stock underlying a warrant issued in the initial closing and 136,154 additional shares of common stock and warrants to purchase an additional 68,077 shares of common stock to SRB Greenway Capital, L.P. issued in the second closing and offered for resale under this prospectus.
- (15) Assumes the exercise of all warrants held by the selling securityholders.

PLAN OF DISTRIBUTION

The selling securityholders, which as used herein includes donees, pledgees, transferees or other successors-in-interest selling shares of common stock or interests in shares of common stock received after the date of this prospectus from a selling securityholder as a gift, pledge, partnership distribution or other transfer, may, from time to time, sell, transfer or otherwise dispose of any or all of their shares of common stock or interests in shares of common stock on any stock exchange, market or trading facility on which the shares are traded or in private transactions. These dispositions may be at fixed prices, at prevailing market prices at the time of sale, at prices related to the prevailing market price, at varying prices determined at the time of sale, or at negotiated prices.

The selling securityholders may use any one or more of the following methods when disposing of shares or interests therein:

- ordinary brokerage transactions and transactions in which the broker-dealer solicits purchasers;
- block trades in which the broker-dealer will attempt to sell the shares as agent, but may position and resell a portion of the block as principal to facilitate the transaction;
- purchases by a broker-dealer as principal and resale by the broker-dealer for its account;
- an exchange distribution in accordance with the rules of the applicable exchange;
- privately negotiated transactions;
- short sales effected after the date the registration statement of which this prospectus is a part is declared effective by the SEC;
- through the writing or settlement of options or other hedging transactions, whether through an options exchange or otherwise;
- broker-dealers may agree with the selling securityholders to sell a specified number of such shares at a stipulated price per share; and
- a combination of any such methods of sale.

The selling securityholders may, from time to time, pledge or grant a security interest in some or all of the shares of common stock owned by them and, if they default in the performance of their secured obligations, the pledgees or secured parties may offer and sell the shares of common stock, from time to time, under this prospectus, or under an amendment to this prospectus under Rule 424(b)(3) or other applicable provision of the Securities Act amending the list of selling securityholders to include the pledgee, transferee or other successors in interest as selling securityholders under this prospectus. The selling securityholders also may transfer the shares of common stock in other circumstances, in which case the transferees, pledgees or other successors in interest will be the selling beneficial owners for purposes of this prospectus.

In connection with the sale of our common stock or interests therein, the selling securityholders may enter into hedging transactions with broker-dealers or other financial institutions, which may in turn engage in short sales of the common stock in the course of hedging the positions they assume. The selling securityholders may also sell shares of our common stock short and deliver these securities to close out their short positions, or loan or pledge the common stock to broker-dealers that in turn may sell these securities. The selling securityholders may also enter into option or other transactions with broker-dealers or other financial institutions or the creation of one or more derivative securities which require the delivery to such broker-dealer or other financial institution of shares offered by this prospectus, which shares such broker-dealer or other financial institution may resell pursuant to this prospectus (as supplemented or amended to reflect such transaction).

The aggregate proceeds to the selling securityholders from the sale of the common stock offered by them will be the purchase price of the common stock less discounts or commissions, if any. Each of the selling securityholders reserves the right to accept and, together with their agents from time to time, to reject, in whole or in part, any proposed purchase of common stock to be made directly or through agents. We will not receive any of the proceeds from this offering. Upon any exercise of the warrants by payment of cash, however, we will receive the exercise price of the warrants.

The selling securityholders also may resell all or a portion of the shares in open market transactions in reliance upon Rule 144 under the Securities Act of 1933, provided that they meet the criteria and conform to the requirements of that rule.

The selling securityholders and any underwriters, broker-dealers or agents that participate in the sale of the common stock or interests therein may be “underwriters” within the meaning of Section 2(11) of the Securities Act. Any discounts, commissions, concessions or profit they earn on any resale of the shares may be underwriting discounts and commissions under the Securities Act. Selling securityholders who are “underwriters” within the meaning of Section 2(11) of the Securities Act will be subject to the prospectus delivery requirements of the Securities Act.

To the extent required, the shares of our common stock to be sold, the names of the selling securityholders, the respective purchase prices and public offering prices, the names of any agents, dealer or underwriter, any applicable commissions or discounts with respect to a particular offer will be set forth in an accompanying prospectus supplement or, if appropriate, a post-effective amendment to the registration statement that includes this prospectus.

In order to comply with the securities laws of some states, if applicable, the common stock may be sold in these jurisdictions only through registered or licensed brokers or dealers. In addition, in some states the common stock may not be sold unless it has been registered or qualified for sale or an exemption from registration or qualification requirements is available and is complied with.

We have advised the selling securityholders that the anti-manipulation rules of Regulation M under the Exchange Act may apply to sales of shares in the market and to the activities of the selling securityholders and their affiliates. In addition, we will make copies of this prospectus (as it may be supplemented or amended from time to time) available to the selling securityholders for the purpose of satisfying the prospectus delivery requirements of the Securities Act. The selling securityholders may indemnify any broker-dealer that participates in transactions involving the sale of the shares against certain liabilities, including liabilities arising under the Securities Act.

We have agreed to indemnify the selling securityholders against liabilities, including liabilities under the Securities Act and state securities laws, relating to the registration of the shares offered by this prospectus.

We have agreed with the selling securityholders to keep the registration statement of which this prospectus constitutes a part effective until the earlier of (1) such time as all of the shares covered by this prospectus have been disposed of pursuant to and in accordance with the registration statement or (2) the date on which the shares may be sold pursuant to Rule 144(k) of the Securities Act.

LEGAL MATTERS

Certain legal matters relating to the offering will be passed upon for Tegal by Latham & Watkins LLP, San Francisco, California. Certain legal matters will be passed upon for any agents or underwriters by counsel for such agents or underwriters identified in the applicable prospectus supplement.

EXPERTS

The financial statements incorporated in this prospectus by reference to the Annual Report on Form 10-K/A for the year ended March 31, 2005 have been so incorporated in reliance on the report (which contains an explanatory paragraph relating to the ability of Tegal Corporation to continue as a going concern, as described in Note 1 to the financial statements) of Moss Adams, LLP, given on the authority of said firm as experts in auditing and accounting.

WHERE YOU CAN FIND MORE INFORMATION

We are subject to the information requirements of the Securities Exchange Act of 1934, as amended. Accordingly, we file annual,

quarterly and periodic reports, proxy statements and other information with the SEC relating to our business, financial statements and other matters. You may read and copy any documents we have filed with the SEC at prescribed rates at the SEC's Public Reference Room at 100 F Street, N.E., Washington, DC 20549. You can obtain information on the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330. Our SEC filings are also available to you free of charge at the SEC's web site at www.sec.gov and our Exchange Act filings are also available at our web site at www.tegal.com. Information contained in our web site is not part of this prospectus.

This prospectus is only part of a registration statement on Form S-3 that we have filed with the SEC under the Securities Act, and therefore omits certain information contained in the registration statement. We have also filed exhibits with the registration statement that are not included in this prospectus, and you should refer to the applicable exhibit for a complete description of any statement referring to any contract or other document. A copy of the registration statement, including the exhibits thereto, may be inspected without charge at the Public Reference Room of the SEC described above, and copies of such material may be obtained from such office upon payment of the fees prescribed by the SEC.

We have elected to "incorporate by reference" certain information into this prospectus. By incorporating by reference, we can disclose important information to you by referring you to another document we have filed with the SEC. The information incorporated by reference is deemed to be part of this prospectus, except for information incorporated by reference that is superseded by information contained in this prospectus. This prospectus incorporates by reference the documents set forth below that we have previously filed with the SEC:

Tegal Corporation SEC Filings	Period Ended
Annual Report on Form 10-K/A, as amended	March 31, 2005
Quarterly Report on Form 10-Q	June 30, 2005
Current Reports on Form 8-K	filed on May 25, 2005
	filed on July 11, 2005
	filed on July 11, 2005
	filed on July 19, 2005
	filed on July 21, 2005
	filed on August 9, 2005
	filed on August 19, 2005
	filed on September 15, 2005
	filed on September 21, 2005
	filed on September 22, 2005
	filed on September 30, 2005
The description of our common stock as set forth in our Registration Statement on Form 8-A	filed on September 21, 1995

All documents that we file with the SEC pursuant to Section 13(a), 13(c), 14 or 15(d) of the Exchange Act from the date of this prospectus to the end of the offering of the common stock under this prospectus shall also be deemed to be incorporated in this prospectus by reference.

You may obtain copies of these documents from us without charge (other than exhibits to such documents, unless such exhibits are specifically incorporated by reference into such documents) by writing to us at Tegal Corporation, 2201 South McDowell Boulevard, Petaluma, California 94954 or calling us at (707) 763-5600.

36,810,000

SHARES OF COMMON STOCK

TEGAL CORPORATION

PROSPECTUS

We have not authorized any dealer, salesman or other person to give any information or to make any representation other than those contained or incorporated by reference in this prospectus and any applicable supplement to this prospectus. You must not rely upon any information or representation not contained or incorporated by reference in this prospectus or any applicable supplement to this prospectus. Neither this prospectus nor any applicable supplement to this prospectus constitutes an offer to sell or the solicitation of an offer to buy any securities other than the registered common stock to which it relates, nor does this prospectus or any supplement to this prospectus constitute an offer to sell or the solicitation of an offer to buy securities in any jurisdiction to any person to whom it is unlawful to make such offer or solicitation in such jurisdiction. You should not assume that the information contained in this prospectus or any supplement to this prospectus is accurate on any date subsequent to the date set forth on the front of this prospectus or any supplement to this prospectus or that any information we have incorporated by reference is correct on any date subsequent to the date of the document incorporated by reference, even though this prospectus and any applicable supplement to this prospectus is delivered or securities issued on a later date.