

JOHN K. KIBARIAN

President and Chief Executive Officer

PDF Solutions, Inc.

333 West San Carlos Street, Suite 700

San Jose, California 95110

(Name and Address of Agent for Service)

(408) 280-7900

(Telephone Number, Including Area Code, of Agent for Service)

Copy to:

Peter Cohn, Esq.

Orrick, Herrington & Sutcliffe LLP

1040 Marsh Road

Menlo Park, California 94025

(650) 614-7400

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

Large accelerated filer

Non-accelerated filer

(Do not check if smaller reporting company)

Accelerated filer

Smaller reporting company

CALCULATION OF REGISTRATION FEE

Title of Securities to be Registered	Amount To Be Registered (1)	Proposed Maximum Offering Price Per Share	Proposed Maximum Aggregate Offering Price	Amount of Registration Fee
Common Stock, \$0.00015 par value (2011 Stock Incentive Plan)	3,200,000	\$8.04	(2) \$25,728,000	(2) \$2,948.43
Common Stock, \$0.00015 par value (2001 Employee Stock Purchase Plan)	566,078	\$6.834	(3) \$3,868,577	(3) \$443.34
Total	3,766,078	-	\$29,596,577	\$3,391.77

(1) This Registration Statement shall also cover any additional shares of Common Stock which become issuable under either the 2011 Stock Incentive Plan or the 2001 Employee Stock Purchase Plan by reason of any stock dividend, stock split, recapitalization or other similar transaction effected without the registrant's receipt of consideration which results in an increase in the number of the Registrant's outstanding shares of Common Stock.

(2) The Proposed Maximum Offering Price Per Share is calculated in accordance with Rules 457(c) and 457(h) under the Securities Act of 1933, as amended (the Securities Act), solely for the purpose of calculating the registration fee on the basis of \$8.04 per share, the average of the high and low price of the registrant's Common Stock as reported on the NASDAQ Global Market on March 22, 2012.

(3) The Proposed Maximum Offering Price Per Share is calculated in accordance with Rules 457(c) and 457(h) under the Securities Act solely for the purpose of calculating the registration fee on the basis of \$8.04 per share, which is \$6.834 per share, the average of the high and low price of the registrant's Common Stock as reported on the NASDAQ Global Market on March 22, 2012, multiplied by 85%, which is the percentage used to calculate the purchase price under the 2001 Employee Stock Purchase Plan.

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PART II

INFORMATION REQUIRED IN THE REGISTRATION STATEMENT

Item 3. Incorporation of Documents by Reference.

PDF Solutions, Inc. (the Registrant) hereby incorporates by reference into this Registration Statement the following documents previously filed with the Securities and Exchange Commission (the SEC):

- (a) The Registrant's Annual Report on Form 10-K for the fiscal year ended December 31, 2011, filed with the SEC on March 15, 2012 (File No. 000-31311);
- (b) All other reports filed pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended (the Exchange Act), since the end of the fiscal year covered by the Registrant's documents referred to in (a) above; and
- (c) The Registrant's Registration Statement on Form 8-A12G, as amended, filed with the SEC on August 10, 2000 (File No. 000-31311), in which are described the terms, rights and provisions applicable to the Registrant's Common Stock, and including any other amendments or reports filed for the purpose of updating such description.

All documents subsequently filed by the Registrant pursuant to Sections 13(a), 13(c), 14, and 15(d) of the Exchange Act, prior to the filing of a post-effective amendment which indicates that all securities offered hereby have been sold or which deregisters all securities then remaining unsold, shall be deemed to be incorporated by reference in this Registration Statement and to be a part hereof from the date of filing of such documents, except as to specific sections of such statements as set forth therein. Unless expressly incorporated into this Registration Statement, a report furnished on Form 8-K prior or subsequent to the date hereof shall not be incorporated by reference into this Registration Statement. Any statement contained in a document incorporated or deemed to be incorporated herein by reference shall be deemed to be modified or superseded for purposes of this Registration Statement to the extent that a statement contained herein or in any other subsequently filed document which also is or is deemed to be incorporated herein by reference modifies or supersedes such statement.

Item 4. Description of Securities.

Not applicable.

Item 5. Interests of Named Experts and Counsel.

The validity of the Common Stock being registered hereby will be passed upon for the Registrant by Orrick, Herrington & Sutcliffe LLP, Menlo Park, California. As of the date of this Registration Statement, Peter Cohn, a partner of Orrick, Herrington & Sutcliffe LLP, is the Registrant's Secretary.

Item 6. Indemnification of Directors and Officers.

Section 145 of the Delaware General Corporation Law provides that a corporation may indemnify directors and officers, as well as other employees and individuals, against expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by any such person in connection with any threatened, pending or completed actions, suits or proceedings in which such person is made a party by reason of such person being or having been a director, officer, employee or agent of the Registrant. The Delaware General Corporation Law provides that Section 145 is not exclusive of other rights to which those seeking indemnification may be entitled under any bylaw, agreement, vote of stockholders or disinterested directors or otherwise. Article XIII of the Registrant's Third Amended and Restated Certificate of Incorporation and Article VI of the Registrant's Bylaws provide for indemnification by the Registrant of its directors and officers to the fullest extent permitted by the Delaware General Corporation Law.

Section 102(b)(7) of the Delaware General Corporation Law permits a corporation to provide in its certificate of incorporation that a director of the corporation shall not be personally liable to the corporation or its stockholders for monetary damages for breach of fiduciary duty as a director, except for liability (i) for any breach of the director's duty of loyalty to the corporation or its stockholders, (ii) for acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law, (iii) for unlawful payments of dividends or unlawful stock repurchases, redemptions or other distributions, or (iv) for any transaction from which the director derived an improper personal benefit. The Registrant's Amended and Restated Certificate of Incorporation provides for such limitation of liability.

The Registrant has obtained directors' and officers' insurance providing indemnification for certain of the Registrant's directors, officers and employees for certain liabilities.

The Registrant has entered into indemnification agreements with each director and executive officer which provide indemnification that is, in some respects, broader than the specific indemnification provisions contained in the Delaware General Corporation Law and provides indemnification under certain circumstances for acts and omissions which may not be covered by any directors' and officers' liability insurance.

Item 7. Exemption From Registration Claimed.

Not applicable.

Item 8. Exhibits.

Exhibit NumberName

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| 5.1 | Opinion and Consent of Orrick, Herrington & Sutcliffe LLP |
| 23.1 | Consent of Independent Registered Public Accounting Firm |
| 23.2 | Consent of Orrick, Herrington & Sutcliffe LLP (included in Exhibit 5.1 to this Registration Statement) |
| 24.1 | Power of Attorney (included on signature page to this Registration Statement) |
| 99.1 | |

2011 Stock Incentive Plan (incorporated herein by reference to Appendix A to Registrant's Definitive Proxy Statement on Schedule 14A filed on October 7, 2011)

99.2 2001 Employee Stock Purchase Plan (incorporated herein by reference to Appendix B to Registrant's Definitive Proxy Statement on Schedule 14A filed on April 6, 2010)

Item 9. Undertakings.

(a) The undersigned Registrant hereby undertakes:

(1) To file, during any period in which offers or sales are being made, a post-effective amendment to this Registration Statement:

(i) To include any prospectus required by Section 10(a)(3) of the Securities Act;

(ii) To reflect in the prospectus any facts or events arising after the effective date of the Registration Statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the Registration Statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the SEC pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than a 20 percent change in the maximum aggregate offering price set forth in the Calculation of Registration Fee table in the effective Registration Statement; and

(iii) To include any material information with respect to the plan of distribution not previously disclosed in the Registration Statement or any material change to such information in the Registration Statement;

provided, however, that paragraphs (1)(i) and (1)(ii) do not apply if the information required to be included in the post-effective amendment by those paragraphs is contained in periodic reports filed with or furnished to the SEC by the Registrant pursuant to Section 13 or 15(d) of the Exchange Act that are incorporated by reference in this Registration Statement.

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

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

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

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

SIGNATURES

Pursuant to the requirements of the Securities Act, the Registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-8 and has duly caused this Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of San Jose, State of California, on the 23rd day of March, 2012.

PDF SOLUTIONS, INC.

(Registrant)

By: /s/ Michael Shahbazian

Michael Shahbazian

Vice President

(principal financial and accounting officer)

POWER OF ATTORNEY

Each of the undersigned directors of PDF Solutions, Inc., a Delaware corporation (the Company), hereby constitutes and appoints John K. Kibarian and Michael Shahbazian, and each of them, his true and lawful attorneys-in-fact, with full power of substitution, for him or her and in his or her name, place and stead, in his capacity as a director, to execute a Registration Statement or Registration Statements on Form S-8 under the Securities Act of 1933, as amended, relating to 3,766,078 shares of Common Stock that are issuable under the PDF Solutions, Inc. 2011 Stock Incentive Plan and the 2001 Employee Stock Purchase Plan (the Plans) and any and all amendments (including post-effective amendments) to such Registration Statements, and to file such Registration Statements and any and all amendments thereto, with exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto such attorneys-in-fact full power and authority to do and perform each and every act and thing necessary or desirable to be done in and about the premises, as fully to all intents and purposes, as he might or could do in person, and ratify and confirm all that such attorneys-in-fact or their substitutes may lawfully do or cause to be done by virtue hereof, and hereby consents to such registration of the shares and the issuance thereof pursuant to the terms of the Plans. Pursuant to the requirements of the Securities Act of 1933, this Registration Statement has been signed by the following persons in the capacities and indicated on the dates below.

Signature	Title	Date
/s/ John Kibarian John K. Kibarian	Director, President and Chief Executive Officer (principal executive officer)	<u>March 23, 2012</u>
/s/ Michael Shahbazian Michael Shahbazian	Vice President (principal financial and accounting officer)	<u>March 23, 2012</u>
/s/ Kimon Michaels Kimon W. Michaels	Director, Vice President, Design For Manufacturability	<u>March 23, 2012</u>
/s/ Lucio Lanza Lucio L. Lanza	Chairman of the Board of Directors	<u>March 23, 2012</u>
/s/ R. Stephen Heinrichs R. Stephen Heinrichs	Director	<u>March 17, 2012</u>
/s/ Thomas Caulfield Thomas Caulfield	Director	<u>March 16, 2012</u>

/s/ Albert Y.C. Yu
Albert Y. C. Yu

Director

March 17, 2012

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