

Identification Number)

3301 Olcott Street

Santa Clara, CA 95054

(408) 418 7500

(Address, including zip code, and telephone number, including area code, of Registrant's principal executive offices)

Leonard Perham

Chief Executive Officer and President

MoSys, Inc.

3301 Olcott Street

Santa Clara, CA 95054

(408) 418 7500

(Name, address, including zip code, and telephone number, including area code, of agent for service)

Copies of all communications to:

Alan B. Kalin

Pillsbury Winthrop Shaw Pittman LLP

2550 Hanover Street

Palo Alto, CA 94304

(650) 233 4048

Approximate date of commencement of proposed sale to the public: From time to time after the effective date of this registration statement.

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If the only securities being registered on this form are being offered pursuant to dividend or interest reinvestment plans, please check the following box.

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, as amended, other than securities offered only in connection with dividend or interest reinvestment plans, check the following box:

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act of 1933, as amended, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering:

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act of 1933, as amended, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering:

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

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

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

Large accelerated filer Accelerated filer Non-accelerated filer Smaller reporting company
(Do not check if a smaller reporting company) Emerging growth company

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 7(a)(2)(B) of the Securities Act.

CALCULATION OF REGISTRATION FEE

Title of each class of securities to be registered	Amount to be registered	Proposed maximum offering price	Maximum aggregate offering price (1)(2)	Amount of registration fee(3)
Common Stock, par value \$0.001 per share				
Warrants to purchase common stock, par value \$0.001 per share				
Total			\$ 10,000,000	\$ 1,245

- (1) There are being registered pursuant to this registration statement such indeterminate number of shares of common stock and such indeterminate amount of warrants to purchase shares of common stock as may be offered from time to time pursuant to the prospectus contained in the registration statement with an aggregate initial offering price not to exceed \$10,000,000, or the equivalent thereof in foreign currencies. The securities registered hereunder may be sold separately, together or as units. These contracts would be issued together with securities registered hereunder. There are also being registered hereunder an indeterminate amount or number of shares of the securities as may be issuable upon conversion or exchange of warrants or pursuant to antidilution provisions thereof.
- (2) Pursuant to Rule 457(o) and Form S-3 General Instruction II.D., which permit the registration fee to be calculated on the basis of the maximum offering price of all securities listed, the table does not specify information as to the amount of any particular security to be registered.
- (3) Calculated pursuant to Rule 457(o) under the Securities Act of 1933.

THE REGISTRANT HEREBY AMENDS THIS REGISTRATION STATEMENT ON SUCH DATE OR DATES AS MAY BE NECESSARY TO DELAY ITS EFFECTIVE DATE UNTIL THE REGISTRANT SHALL FILE A FURTHER AMENDMENT WHICH SPECIFICALLY STATES THAT THIS REGISTRATION STATEMENT SHALL THEREAFTER BECOME EFFECTIVE IN ACCORDANCE WITH SECTION 8(A) OF THE SECURITIES ACT OF 1933, OR UNTIL THE REGISTRATION STATEMENT SHALL BECOME EFFECTIVE ON SUCH DATE AS THE SECURITIES AND EXCHANGE COMMISSION, ACTING PURSUANT TO SAID SECTION 8(a), MAY DETERMINE.

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The information in this prospectus is not complete and may be changed. No securities may be sold until the registration statement filed with the Securities and Exchange Commission is effective. This prospectus is not an offer to sell these securities, and it is not soliciting an offer to buy these securities in any state where the offer or sale is not permitted.

SUBJECT TO COMPLETION,

Dated: October , 2017

PROSPECTUS

\$10,000,000

Common Stock

Warrants to Purchase Common Stock

MoSys, Inc.

3301 Olcott Street

Santa Clara, CA 95054

(408) 418 7500

We may offer from time to time:

Shares of our common stock; and

Warrants to purchase shares of our common stock any of the other securities that may be sold under this prospectus.

The securities we offer will have an aggregate public offering price of up to \$10 million. We will provide specific terms of any offering in supplements to this prospectus. The securities may be offered separately or together in any combination and as separate series. You should read this prospectus and any prospectus supplement carefully before you invest.

We may sell these securities on a continuous or delayed basis directly, through agents, dealers or underwriters as designated from time to time, or through a combination of these methods. We reserve the sole right to accept, and together with any agents, dealers and underwriters, reserve the right to reject, in whole or in part, any proposed purchase of securities. If any agents, dealers or underwriters are involved in the sale of any securities, the applicable prospectus supplement will set forth any applicable commissions or discounts. Our net proceeds from the sale of securities also will be set forth in the applicable prospectus supplement.

Our common stock is listed on the Capital Market of the NASDAQ Stock Market under the symbol "MOSY."

As of the date of this prospectus, the aggregate market value of our outstanding common stock held by non-affiliates was approximately \$7 million, based on 8,002,010 shares of outstanding common stock, of which approximately 7,819,427 shares were held by non-affiliates, and a price of \$ per share, which was the last reported sale price of our common stock on The NASDAQ Capital Market on October , 2017. As of the date of this prospectus, we have sold

\$2,252,500 of our securities pursuant to General Instruction I.B.6. of Form S-3 during the prior 12 calendar month period that ends on, and includes, the date of this prospectus.

INVESTING IN OUR SECURITIES INVOLVES RISKS.

SEE "RISK FACTORS" ON PAGE 6.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved these securities or passed upon the adequacy or accuracy of this prospectus. Any representation to the contrary is a criminal offense.

The date of this prospectus is October , 2017.

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In this prospectus, “MoSys,” “we,” “us,” and “our” refer to MoSys, Inc. and its subsidiaries.

You should rely only on information contained or incorporated by reference in this prospectus. We have not authorized any person to provide you with information that differs from what is contained or incorporated by reference in this prospectus. If any person does provide you with information that differs from what is contained or incorporated by reference in this prospectus, you should not rely on it. This prospectus is not an offer to sell or the solicitation of an offer to buy any securities other than the securities to which it relates, or an offer of solicitation in any jurisdiction where offers or sales are not permitted. The information contained in this prospectus is accurate only as of the date of this prospectus, even though this prospectus may be delivered or shares may be sold under this prospectus on a later date.

About This Prospectus

This prospectus is part of a registration statement that we filed with the Securities and Exchange Commission, or the SEC or the Commission, using a “shelf” registration process. Under the shelf process, we may, from time to time, issue and sell to the public any or all of the securities described in the registration statement in one or more offerings.

This prospectus provides you with a general description of the securities we may offer. Each time we offer securities, we will provide a prospectus supplement that will describe the specific amounts, prices, and terms of the securities we

offer. The prospectus supplement also may add, update, or change information contained in this prospectus. This prospectus, together with applicable prospectus supplements, includes all material information relating to this offering. If there is any inconsistency between the information in this prospectus and the information in the accompanying prospectus supplement, you should rely on the information in the prospectus supplement. Please carefully read both this prospectus and any prospectus supplement together with the additional information described below under the section entitled “Where You Can Find More Information.”

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We may sell the securities to or through underwriters, dealers, or agents or directly to purchasers. We and our agents reserve the sole right to accept and to reject in whole or in part any proposed purchase of securities. A prospectus supplement, which we will provide each time we offer securities, will provide the names of any underwriters, dealers or agents involved in the sale of the securities, and any applicable fee, commission, or discount arrangements with them.

Special Note Regarding Forward-Looking Statements

Some of the statements in this prospectus constitute forward-looking statements. These statements involve known and unknown risks, uncertainties, and other factors that may cause our or our industry's actual results, levels of activity, performance, or achievements to be materially different from any future results, levels of activity, performance, or achievements expressed or implied by such forward-looking statements. These factors include, among others, those incorporated by reference under "Risk Factors" below.

In some cases, you can identify forward-looking statements by terms such as "may," "will," "should," "expects," "plans," "anticipates," "believes," "estimates," "predicts," "potential," or "continue" or similar terms.

Although we believe that the expectations reflected in the forward-looking statements are reasonable, we cannot guarantee future results, levels of activity, performance, or achievements. Our actual results could differ materially from those expressed or implied by these forward-looking statements as a result of various factors, including the risk factors incorporated by reference under the heading "Risk Factors" below and a variety of other factors, including, without limitation, statements about our future business operations and results, the market for our technology, our strategy and competition.

Moreover, neither we nor any other person assumes responsibility for the accuracy and completeness of these statements. We undertake no obligation to update or revise any of the forward-looking statements, whether as a result of new information, future events or otherwise, except as required by law. In light of these risks, uncertainties and assumptions, the forward-looking events discussed or incorporated by reference in this prospectus may not occur.

Our Company

We were founded in 1991. Our principal executive offices are located at 3301 Olcott Street, Santa Clara, CA 95054. Our telephone number at that address is (408) 418 7500.

We are a fabless semiconductor company focused on the development and sale of integrated circuits, or ICs, for the high-speed networking, communications, storage and data center markets. Our solutions deliver time-to-market, performance, power, area and economic benefits for system original equipment manufacturers, or OEMs. We have developed two families of ICs under the Bandwidth Engine® and LineSpeed™ product names. Bandwidth Engine ICs combine our proprietary 1T-SRAM® high-density embedded memory, integrated macro functions and high-speed serial interface, or SerDes, I/O, with our intelligent access technology and a highly efficient interface protocol. The LineSpeed IC product line is comprised of non-memory, high-speed SerDes I/O devices with clock data recovery, gearbox and retimer functionality, which convert lanes of data received on line cards or by optical modules into different configurations and/or ensure signal integrity. In the quarter ended September 30, 2017, we notified our customers that we intend to discontinue our LineSpeed IC product line. We are currently supporting existing LineSpeed IC customers and accepting last-time product orders. Going forward, we expect to focus all of our efforts on our Bandwidth Engine IC product line. Historically, our primary business was the design, development, marketing, sale and support of differentiated intellectual property, or IP, including embedded memory and high-speed parallel and SerDes I/O used in advanced systems-on-chips, or SoCs.

Our future success and ability to achieve and maintain profitability are dependent on the marketing and sales of our Bandwidth Engine IC products into networking, communications and other markets requiring high-bandwidth memory access.

We incurred a net loss of \$4.0 million for the quarter ended June 30, 2017 and had an accumulated deficit of \$222.4 million as of June 30, 2017. In addition, we incurred net losses of approximately \$32.0 million and \$31.5 million

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for the years ended December 31, 2016 and 2015, respectively. These and prior year losses have resulted in significant negative cash flows for almost a decade and have required us to raise substantial amounts of additional capital during this period. To date, we have primarily financed our operations through multiple offerings of common stock to investors and affiliates, as well as asset sale transactions. In March 2016, we entered into a 10% Senior Secured Convertible Note Purchase Agreement with the purchasers of \$8.0 million principal amount of 10% Senior Secured Convertible Notes due August 15, 2018 (the "Notes"), at par, in a private placement transaction. The Notes bear interest at the annual rate of 10%. Accrued interest is payable semi-annually in cash or in-kind through the issuance of identical new Notes, or with a combination of the two, at our option. Since issuance of the Notes, we have made the interest payments in-kind through the issuance of additional notes totaling approximately \$0.8 million. Further, the Notes restrict our ability to incur any indebtedness for borrowed money, unless such indebtedness by its terms is expressly subordinated to the Notes in right of payment and to the security interest of the Note holder(s) in respect to the priority and enforcement of any security interest in our property securing such new debt; provided that the Note holder(s) security interest and cash payment rights under the Notes shall be subordinate to a maximum of \$5 million of indebtedness for a secured accounts receivable line of credit facility under certain conditions.

We expect to continue to incur operating losses for the foreseeable future as we secure customers for and continue to invest in the commercialization of our Bandwidth Engine IC products. We will need to increase revenues substantially beyond levels that we have attained in the past in order to generate sustainable operating profit and sufficient cash flows to continue doing business without raising additional capital from time to time. As a result of our expected operating losses and cash burn for the foreseeable future, recurring losses from operations, and the need to repay the Notes and accrued interest in 2018, if we are unable to raise sufficient capital through additional debt or equity arrangements, there will be uncertainty regarding our ability to maintain liquidity sufficient to operate our business effectively, which raises substantial doubt as to our ability to continue as a going concern. There can be no assurance that such additional capital, whether in the form of debt or equity financing, will be sufficient or available and, if available, that such capital will be offered on terms and conditions acceptable to us. We are primarily focusing our resources on producing and selling our existing products, and have substantially curtailed new product development. If we are unsuccessful in these efforts, we will need to implement additional cost reduction strategies, which could further affect our near- and long-term business plan. These efforts may include, but are not limited to, further reducing headcount and curtailing business activities.

Our Strategy

Our primary business objective is to be an IP-rich fabless semiconductor company offering ICs that deliver unparalleled bandwidth performance for next generation data center, networking and communications systems.

Our Products

Bandwidth Engine

The Bandwidth Engine is a memory-dominated IC that has been designed to be a high-performance companion IC to packet processors. While the Bandwidth Engine primarily functions as a memory device with a high-performance and high-efficiency interface, it also can accelerate certain processing operations by serving as a co-processor element. Our Bandwidth Engine ICs combine: (1) our proprietary high-density, high-speed, low latency embedded memory, (2) our high-speed serial interface technology, or SerDes, (3) an open-standard interface protocol and (4) intelligent access technology. We believe an IC combining our 1T-SRAM memory and serial I/O with logic and other intelligence functions provides a system-level solution and significantly improves overall system performance at lower cost, size and power consumption. Our Bandwidth Engine ICs can provide up to and over 4.5 billion memory accesses per second, which is more than twice the performance of current memory-based solutions. They also can enable system designers to significantly narrow the gap between processor and memory IC performance. Customers

that design Bandwidth Engine ICs onto the line cards in their networking systems will re-architect their systems at the line-card level and use our product to replace traditional memory solutions. When compared with existing commercially available solutions, our Bandwidth Engine ICs may:

provide up to four times the performance;

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reduce power by approximately 50%;

reduce cost by greater than 50%; and

result in a dramatic reduction in IC pin counts on the line card.

Our first generation Bandwidth Engine IC, or BE1, products contain 576 megabytes, or MB, of memory and use a serial I/O with up to 16 lanes operating at up to 10.3 Gbps per lane. Variations of the BE1 can have up to two interface ports, with up to eight serial receiver and eight serial transmitter lanes per port for a total of 16 lanes of 10.3 Gbps SerDes interface. These ICs include an arithmetic logic unit, which can perform read-modify-write operations. We have been shipping our BE1 products since 2012. We have notified customers, however, that we intend to discontinue our BE1 products. We expect to complete final shipments of our BE1 products by the end of 2018.

Our second generation Bandwidth Engine IC, BE2, products contain 576 MB of memory and use serial I/O with up to 16 lanes operating at up to 15 Gbps per lane. In addition to a speed improvement of up to 50%, the architecture enables several family member parts with added specialized features. To date, we have announced three unique devices in this product family:

MSR620 with burst features optimized for oversubscription buffer applications;

MSR720 with a write cache and memory coherency capability that allows for deterministic look-ups optimized for state and queue type applications; and

MSR820 with increased intelligence for lookup, metering and statistics applications by adding dual counters, atomic and extensive metering functions.

We have been shipping our BE2 products since 2013. These products represented the majority of our revenues in 2016. We expect our BE2 products to represent the majority of our revenues for the foreseeable future.

Our third generation Bandwidth Engine IC, or BE3, products contain 1152 MB of memory and use serial I/O with up to 16 lanes operating at up to 30 Gbps per lane. BE3 targets support for packet-processing applications with up to five billion memory single word accesses per second, as well as burst mode to enable full duplex buffering up to 400Gbps for ingress, egress and oversubscription applications. To date, we have announced three unique devices in this product family:

MSR630 enables high rate lookup or high-performance buffer capabilities; and

MSR830 offers additional offload capabilities for functions such as statistics and metering to increase performance and add features for next-generation networking and communications equipment; and

MSRZ30 builds upon the capabilities and performance of the MSR830, with data rates, interface protocol and data structures that are optimized for the EZchip NPS 400 network processing unit, or NPU, and can increase memory bandwidth by up to 50%.

We commenced sampling of our BE3 products in 2016, and expect to qualify these products for mass production in the first half of 2018. We do not anticipate significant revenues from our BE3 products until 2019 or later.

Programmable Search Engine

We brought our Programmable Search Engine IC (“PSE”) products to market in early 2016 to further leverage our proven serial interface technology and high-density integrated memory with the processor engine architecture to enable high-speed customizable search, security, and data analysis functions for networking, security, and data center applications. Our PSE architecture features 32 search-optimized processor engines, data flow schedulers, and over a

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terabit of internal access bandwidth. The device leverages our GCI technology and high-density integrated memory (1152 Mb of 1T-SRAM® embedded memory). The PSE device's 32 processor elements have direct access to integrated table memory through an internal interconnect and scheduler architecture. To date, we have not sold the PSE in significant quantities, and have suspended our efforts to qualify the PSE until we identify a lead customer.

IP Licensing and Distribution

Historically, we have offered our memory and I/O technologies on a worldwide basis to semiconductor companies, electronic product manufacturers, foundries, intellectual property companies and design companies through product development, technology licensing and joint marketing relationships. We licensed our IP technology to semiconductor companies who incorporated our technology into ICs that they sold to their customers. As a result of the change in our corporate strategy, since early 2012, our IP licensing activities have been limited, and we expect this to continue. However, for the six months ended June 30, 2017 and the year ended December 31, 2016, approximately 20% and 24%, respectively, of our total revenues were generated from licensing and royalties related to our existing licensing arrangements, as we continued to perform and deliver under outstanding license agreements and collect royalties from 1T- SRAM licensees. To date, we have completed our performance obligations under our existing licensing agreements, and we expect licensing and royalty revenues to be minimal in future years.

Risk Factors

An investment in our common stock is risky. Prior to making a decision about investing in our common stock, you should carefully consider the specific risks discussed in our other filings with the SEC, which are incorporated by reference in this prospectus, together with all of the other information contained in this prospectus, any applicable prospectus supplement, or otherwise incorporated by reference in this prospectus. The risks and uncertainties described in our SEC filings are not the only ones facing us. Additional risks and uncertainties not presently known to us, or that we currently see as immaterial, may also harm our business. If any of the risks or uncertainties described in the applicable prospectus supplement or our SEC filings or any such additional risks and uncertainties actually occur, our business, results of operations, cash flows and financial condition could be materially and adversely affected. In that case, the trading price of our common stock could decline, and you might lose part or all of your investment.

Use of Proceeds

We intend to use the net proceeds for working capital and other general corporate purposes.

The amounts we plan to spend on each area of our operations, including capital expenditures, as well as the timing of any expenditures, are determined by internal planning and budgeting processes, and may change over time. Pending such uses, the net proceeds of this offering will be invested according to a cash management policy adopted by our board of directors, which includes short-term, investment-grade securities.

General Description of Securities That We May Sell

We may offer and sell, at any time and from time to time:

Shares of our common stock, par value \$0.001 per share;

Warrants to purchase shares of our common stock any of the other securities that may be sold under this prospectus;
or

Any combination of these securities.

The terms of any securities we offer will be determined at the time of sale. When particular securities are offered, a supplement to this prospectus will be filed with the SEC, which will describe the terms of the offering and sale of the offered securities.

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Description of Capital Stock

General

The following description of our capital stock and provisions of our certificate of incorporation and bylaws is a summary only and not a complete description.

Our authorized capital stock consists of 120,000,000 shares of common stock, par value \$0.001 per share, and 20,000,000 shares of preferred stock, par value \$0.01 per share.

Common Stock

As of October 1, 2017, 8,002,010 shares of our common stock were outstanding and held of record by 16 stockholders. Each holder of our common stock is entitled to—

one vote per share on all matters submitted to a vote of the stockholders;

dividends as may be declared by our board of directors out of funds legally available for that purpose, subject to the rights of any preferred stock that may be outstanding; and

his, her or its pro rata share in any distribution of our assets after payment or providing for the payment of liabilities and the liquidation preference of any outstanding preferred stock in the event of liquidation.

Holders of common stock have no cumulative voting rights, redemption rights or preemptive rights to purchase or subscribe for any shares of our common stock or other securities. All of the outstanding shares of common stock are fully paid and nonassessable. The rights, preferences and privileges of holders of our common stock are subject to, and may be adversely affected by, the rights of the holders of shares of any series of preferred stock that we may designate and issue in the future

Preferred Stock

We have designated 120,000 shares of our preferred stock as Series AA preferred stock for issuance pursuant to the exercise of rights under our rights plan, none of which are outstanding. For more information on the rights plan, see the discussion below. We have no current intention to issue any other shares of preferred stock.

Our board of directors has the authority, subject to any limitations prescribed by Delaware law, to issue shares of preferred stock in one or more series and to fix and determine the relative rights and preferences of the shares constituting any series to be established, without any further vote or action by the stockholders. Any shares of our preferred stock so issued may have priority over our common stock with respect to dividend, liquidation and other rights.

Our board of directors may authorize the issuance of our preferred stock with voting or conversion rights that could adversely affect the voting power or other rights of the holders of our common stock. Although the issuance of our preferred stock could provide us with flexibility in connection with possible acquisitions and other corporate purposes, under some circumstances, it could have the effect of delaying, deferring or preventing a change of control.

Antitakeover Effects of Provisions of Our Certificate of Incorporation and Bylaws and of Delaware Law.

Certain provisions of our charter documents and Delaware law could have an anti-takeover effect and could delay, discourage or prevent a tender offer or takeover attempt that a stockholder might consider to be in its best interests, including attempts that might otherwise result in a premium being paid over the market price of our common stock.

Certificate of Incorporation and Bylaws. Our certificate of incorporation provides that stockholders can take action only at a duly called annual or special meeting of the stockholders and not by written consent. At the same time, our bylaws

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provide that special meetings of stockholders may be called only by our chairman of the board, our chief executive officer, a majority of the total number of authorized directors or any individual holder of 25% of the outstanding shares of common stock. These provisions could delay consideration of a stockholder proposal until the next annual meeting. Our bylaws provide for an advance notice procedure for the nomination, other than by or at the direction of our board of directors, of candidates for election as directors, as well as for other stockholder proposals to be considered at annual meetings of stockholders. In addition, under our bylaws newly created directorships resulting from any increase in the number of directors or any vacancies in the board resulting from death, resignation, retirement, disqualification, removal from office or other cause during a director's term in office can be filled by the vote of the remaining directors in office, and the board is expressly authorized to amend the bylaws without stockholder consent. These provisions may preclude a third party from removing incumbent directors and can control of our board of directors. Accordingly, these provisions could discourage a third party from initiating a proxy contest, making a tender offer or otherwise attempting to gain control of our company.

Delaware Takeover Statute. Section 203 of the Delaware General Corporation Law, or DGCL, generally prohibits a publicly-held Delaware corporation from engaging in an acquisition, asset sale or other transaction resulting in a financial benefit to any person who, together with affiliates and associates, owns, or within three years did own, 15.0% or more of a corporation's voting stock. The prohibition continues for a period of three years after the date of the transaction in which the person becomes an owner of 15.0% or more of the corporation's voting stock, unless the business combination is approved in a prescribed manner. The statute could prohibit, delay, defer or prevent a change in control with respect to our company.

Antitakeover Effects of Our Rights Plan

On November 10, 2010, we executed a rights agreement in connection with the declaration by our board of directors of a dividend of one preferred stock purchase right to be paid on November 10, 2010, referred to as the "record date," for each share of our common stock issued and outstanding at the close of business on the record date. Each right entitles the registered holder to purchase one one-thousandth of a share of our Series AA Preferred Stock, \$0.01 par value per share, at a price of \$48.00 per one one-thousandth of a share of such Series AA Preferred Stock, subject to adjustment, including as a result of our one-for-ten reverse stock split in February 2017 (which adjustment is not reflected here). The rights will not be exercisable until a third party acquires 15% of our common stock or commences or announces its intent to commence a tender offer for at least 15% of our common stock, other than holders of "grandfathered stock" as defined below.

"Grandfathered stock" refers to stock held by Carl E. Berg, formerly a member of our board of directors for approximately 20 years, and his affiliates. The beneficial ownership threshold for a holder of grandfathered stock is 20%, rather than 15%. In addition, under the rights agreement, the firm of Ingalls & Snyder, or I&S, and its managed account beneficial owners collectively will not trigger the rights as long as none of their shares are held for the purpose of acquiring control or effecting change or influence in control of us. This exclusion applies only to shares of common stock for which there is only shared dispositive power and I&S has only non-discretionary voting power.

The rights agreement could delay, deter or prevent an investor from acquiring us in a transaction that could otherwise result in our stockholders receiving a premium over the market price for their shares of common stock.

Transfer Agent

The transfer agent and registrar for our common stock is Wells Fargo Bank, National Association.

Description of Warrants

The following description, together with the additional information we include in any applicable prospectus supplement, summarizes the material terms and provisions of the warrants that we may offer under this prospectus and any related warrant agreements and warrant certificates. While the terms we have summarized below will apply generally to any warrants we may offer, we will describe the particular terms of any series of warrants in more detail in the applicable prospectus supplement, which may differ from the terms we describe below.

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General

We may issue, together with other securities or separately, warrants to purchase our common stock. We may issue the warrants directly to the purchasers of the warrants or under warrant agreements to be entered into between us and a bank or trust company, as warrant agent, all as set forth in the applicable prospectus supplement. A warrant agent will act solely as our agent in connection with the warrants of the series being offered and will not assume any obligation or relationship of agency or trust for or with any holders or beneficial owners of warrants.

The prospectus supplement will describe the following terms, where applicable, of warrants that we may offer:

the title of the warrants;

the designation, amount and terms of the securities for which the warrants are exercisable and the procedures and conditions relating to the exercise of such warrants;

the designation and terms of the other securities, if any, with which the warrants are to be issued and the number of warrants issued with each such security;

the price or prices at which the warrants will be issued;

the aggregate number of warrants;

any provisions for adjustment of the number or amount of securities receivable upon exercise of the warrants or the exercise price of the warrants;

the price or prices at which the securities purchasable upon exercise of the warrants may be purchased, including provisions for adjustment of the exercise price of the warrant;

if applicable, the date on and after which the warrants and the securities purchasable upon exercise of the warrants will be separately transferable;

if applicable, a discussion of the material U.S. federal income tax considerations applicable to the exercise of the warrants;

any other terms of the warrants, including terms, procedures and limitations relating to the exchange and exercise of the warrants;

the date on which the right to exercise the warrants shall commence, and the date on which the right shall expire; and

the maximum or minimum number of warrants which may be exercised at any time.

Before exercising their warrants, holders of warrants will not have any of the rights of holders of the securities purchasable upon such exercise, including the right to receive dividends, if any, or payments upon our liquidation, dissolution or winding up or to exercise voting rights, if any.

Exercise of Warrants

Each warrant will entitle the holder thereof to purchase for cash the number of shares of common stock at the exercise price as will in each case be set forth in, or be determinable as set forth in, the applicable prospectus supplement.

Warrants may be exercised at any time up to the close of business on the expiration date set forth in the applicable prospectus supplement. After the close of business on the expiration date, unexercised warrants will become void.

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Warrants may be exercised as set forth in the applicable prospectus supplement relating to the warrants offered thereby. Upon receipt of payment and the warrant certificate properly completed and duly executed at the corporate trust office of the warrant agent or any other office indicated in the applicable prospectus supplement, we will, as soon as practicable, forward the purchased securities. If less than all of the warrants represented by the warrant certificate are exercised, a new warrant certificate will be issued for the remaining warrants.

Enforceability of Rights of Holders of Warrants

Each warrant agent will act solely as our agent under the applicable warrant agreement and will not assume any obligation or relationship of agency or trust with any holder of any warrant. A single bank or trust company may act as warrant agent for more than one issue of warrants. A warrant agent will have no duty or responsibility in case of any default by us under the applicable warrant agreement or warrant, including any duty or responsibility to initiate any proceedings at law or otherwise, or to make any demand upon us. Any holder of a warrant may, without the consent of the related warrant agent or the holder of any other warrant, enforce by appropriate legal action its right to exercise, and receive the securities purchasable upon exercise of, that holder's warrants.

Plan of Distribution

We may sell the securities in and outside the United States through underwriters or dealers, directly to purchasers, including our affiliates, through agents, or through a combination of any of these methods. The prospectus supplement will include the following information:

the terms of the offering;

the names of any underwriters, dealers or agents;

the name or names of any managing underwriter or underwriters;

the purchase price of the securities;

the net proceeds from the sale of the securities;

any delayed delivery arrangements;

any underwriting discounts, commissions and other items constituting underwriters' compensation;

any public offering price;

any discounts or concessions allowed or reallocated or paid to dealers;

any commissions paid to agents; and

any market or securities exchange on which the securities offered in the prospectus supplement may be listed.

Sale through Underwriters or Dealers

If underwriters are used in the sale of any of these securities, the underwriters will acquire the securities for their own account. The underwriters may resell the securities 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. Underwriters may offer

securities to the public either through underwriting syndicates represented by one or more managing underwriters or directly by one or more firms acting as underwriters. Unless we inform you otherwise in any prospectus supplement, the obligations of the underwriters to purchase the securities will be subject to certain conditions, and the underwriters will

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be obligated to purchase all the offered securities if they purchase any of them. The underwriters may change from time to time any public offering price and any discounts or concessions allowed or reallocated or paid to dealers.

During and after an offering through underwriters, the underwriters may purchase and sell the securities in the open market. These transactions may include overallotment and stabilizing transactions and purchases to cover syndicate short positions created in connection with the offering. The underwriters may also impose a penalty bid, which means that selling concessions allowed to syndicate members or other broker-dealers for the offered securities sold for their account may be reclaimed by the syndicate if the offered securities are repurchased by the syndicate in stabilizing or covering transactions. These activities may stabilize, maintain or otherwise affect the market price of the offered securities, which may be higher than the price that might otherwise prevail in the open market. If commenced, the underwriters may discontinue these activities at any time.

Some or all of the securities that we offer through this prospectus may be new issues of securities with no established trading market. Any underwriters to whom we sell these securities for public offering and sale may make a market in those securities, but they will not be obligated to and they may discontinue any market making at any time without notice. Accordingly, we cannot assure you of the liquidity of, or continued trading markets for, any securities that we offer.

If dealers are used in the sale of securities, we will sell the securities to them as principals. They may then resell those securities to the public at varying prices determined by the dealers at the time of resale. We will include in the prospectus supplement the names of the dealers and the terms of the transaction.

Direct Sales and Sales through Agents

We may sell the securities directly, and not through underwriters or agents. We may also sell the securities through agents designated from time to time. In the prospectus supplement, we will name any agent involved in the offer or sale of the offered securities, and we will describe any commissions payable to the agent. Unless we inform you otherwise in the prospectus supplement, any agent will agree to use its reasonable best efforts to solicit purchases for the period of its appointment.

We may sell the securities directly to institutional investors or others who may be deemed to be underwriters within the meaning of the Securities Act of 1933, as amended, or the Securities Act, with respect to any sale of those securities. We will describe the terms of any such sales in the prospectus supplement.

Issuance of Common Stock Pursuant to Certain Warrant Exercises

We may also offer and sell our common stock upon the exercise of warrants issued by us, pursuant to the exemption from the registration requirements provided by Section 3(a)(10) of the Securities Act, in connection with a settlement of litigation against us. No underwriter would be used in connection with such offer and sale of common stock or the exercise of such warrants. We would issue the shares of our common stock directly to the holders of such warrants, upon the exercise of such warrants, from time to time. We will describe the terms of any such offers, sales and warrants in a prospectus supplement.

General Information

We may have agreements with the agents, dealers and underwriters to indemnify them against certain civil liabilities, including liabilities under the Securities Act, or to contribute with respect to payments that the agents, dealers or underwriters may be required to make. Agents, dealers and underwriters may be customers of, engage in transactions with or perform services for us in the ordinary course of their businesses.

Experts

The consolidated financial statements of MoSys, Inc. as of December 31, 2016 and 2015 and for each of the three years in the period ended December 31, 2016, incorporated in this Registration Statement on Form S-3 by reference to its

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Annual Report on Form 10-K for the year ended December 31, 2016, have been so incorporated in reliance on the report (which contains an explanatory paragraph relating to the Company's ability to continue as a going concern as described in Note 1 to the consolidated financial statements) of BPM LLP, an independent registered public accounting firm, given on the authority of said firm as experts in auditing and accounting.

Legal Matters

The validity of the issuance of shares of any securities offered hereby will be passed upon for us by Pillsbury Winthrop Shaw Pittman LLP, Palo Alto, California.

Where You Can Find More Information

We file annual, quarterly and special reports and other information with the SEC. In addition, we have filed with the SEC a Registration Statement on Form S-3, of which this prospectus is a part, under the Securities Act, with respect to the shares of common stock offered hereby. You may read and obtain copies at prescribed rates of any document that we file with the SEC at its Public Reference Room at 100 F Street, N.E., Washington, D.C. 20549. Please call the SEC at 1-800-SEC-0330 for further information on the operation of the Public Reference Room. Our SEC filings are also available to you free of charge at the SEC's web site at <http://www.sec.gov>, which contains reports, proxy and information statements and other information regarding issuers that file electronically with the SEC.

Our common stock is traded on the Capital Market of the NASDAQ Stock Market. Material filed by us can be inspected at the offices of the Financial Industry Regulatory Authority, 1735 K Street, N.W., Washington, D.C. 20006.

Incorporation by Reference

The SEC allows us to "incorporate by reference" the information we file with them, which means that we can disclose important information by referring you to those documents. The information incorporated by reference is considered to be part of this prospectus, and information that we file later with the SEC will automatically update and supersede the information that is either incorporated by reference, or contained in, this prospectus and will be considered a part of this prospectus from the date those documents are filed. We incorporate by reference the documents listed below:

- (a) our Annual Report on Form 10-K for the fiscal year ended December 31, 2016, filed with the SEC on March 30, 2017;
- (b) our Current Report on Form 8-K filed with the SEC on February 14, 2017;
- (c) our Quarterly Report on Form 10-Q for the three months ended March 31, 2017, filed with the SEC on May 12, 2017;
- (d) our definitive proxy statement on Schedule 14A filed with the SEC on June 6, 2016;
- (e) our Current Report on Form 8-K filed with the SEC on June 30, 2017;
- (f) our Quarterly Report on Form 10-Q for the three and six months ended June 30, 2017, filed with the SEC on August 10, 2017;
- (g) our Current Report on Form 8-K filed with the SEC on October 2, 2017;

(h)our Current Report on Form 8 K filed with the SEC on October 9, 2017; and

(i)the description of our capital stock set forth in our Registration Statement on Form 8 A, filed with the SEC on June 26, 2001, as amended by Amendment No. 2 to Registration Statement on Form 8 A/A, filed with the SEC on November 12, 2010, Amendment No. 3 on Form 8 A/A, filed on July 27, 2011, and Amendment No. 4 on Form 8 A/A, filed on May 24, 2012.

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In addition, all documents filed by us with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act subsequent to the date of filing the registration statement that includes this prospectus and prior to the filing of a post-effective amendment to the registration statement containing this prospectus, which indicates that all securities offered have been sold or which deregisters all of such securities then remaining unsold, shall be deemed to be incorporated by reference in this prospectus and to be a part hereof from the respective dates of filing of such documents. However, we are not incorporating by reference, in each case, any information or documents that are deemed to be furnished and not filed in accordance with SEC rules.

You may request a copy of these filings, at no cost, by writing or telephoning us at the following address or telephone number:

MoSys, Inc.

3301 Olcott Street

Santa Clara, CA 95054

(408) 418 7500

Attention: Chief Financial Officer

We will not, however, send exhibits to these documents unless the exhibits are specifically incorporated by reference in those documents or deemed to be incorporated by reference in this prospectus. In addition, you may obtain a copy of these filings from the SEC as described above in the section entitled "Where You Can Find More Information."

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PART II

Information Not Required In Prospectus

Item 14. Other Expenses Of Issuance And Distribution

To be provided upon the filing of a prospectus supplement to which this registration statement related or in a report filed by the registrant under the Securities Exchange Act of 1934.

Item 15. Indemnification Of Directors And Officers

Section 145 of the Delaware General Corporation Law, or the DGCL, authorizes a court to award, or a corporation's board of directors to grant, indemnity to directors and officers in terms sufficiently broad to permit such indemnification under certain circumstances for liabilities (including reimbursement for expenses incurred) arising under the Securities Act.

As permitted by the DGCL, our bylaws provide that we shall indemnify our directors and officers, and may indemnify our employees and other agents, to the fullest extent permitted by law. The bylaws also permit us to secure insurance on behalf of any officer, director, employee or agent of another corporation, partnership, joint venture, trust or other enterprise against any liability arising out of his or her actions in that capacity if he or she is serving at our request. We have obtained officer and director liability insurance with respect to liabilities arising out of various matters, including matters arising under the Securities Act.

We have entered into agreements with our directors that, among other things, indemnify them for certain expenses (including attorneys' fees), judgments, fines and settlement amounts incurred by them in any action or proceeding, including any action by us or in our right, arising out of the person's services as a director or officer of ours or any other company or enterprise to which the person provides services at our request.

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Item 16.Exhibits.

Exhibit Number	Description
1.1	Form of Underwriting Agreement*
4.1	Specimen common stock certificate (1)
4.4(2)	Rights Agreement, dated November 10, 2010, by and between Registrant and Wells Fargo Bank, N.A., as Rights Agent
4.4.1(2)	Form of Right Certificate
4.4.2(2)	Summary of Rights to Purchase Preferred Shares
4.4.3(3)	Amendment No. 1 to Rights Agreement, dated July 22, 2011, by and between Registrant and Wells Fargo Bank, N.A. as Rights Agent
4.4.4(4)	Amendment No. 2 to Rights Agreement, dated May 18, 2012, by and between Registrant and Wells Fargo Bank, N.A. as Rights Agent
4.6	Form of Warrant*
4.7	Form of Warrant Agreement*
5.1	Opinion of Pillsbury Winthrop Shaw Pittman LLP**
23.1	Consent of Independent Registered Public Accounting Firm — BPM LLP**
23.2	Consent of Pillsbury Winthrop Shaw Pittman LLP (included in Exhibit 5.1)
24	Power of Attorney (filed as part of signature page to Registration Statement)

* To be filed with a Current Report on Form 8-K or a Post-Effective Amendment to the registration statement.

** Filed herewith.

(1) Incorporated by reference to the same-numbered exhibit to the Registration Statement on Form S-1, as amended, originally filed by the Registrant with the SEC on August 4, 2000, declared effective June 27, 2001 (Commission File No. 333-43122).

(2) Incorporated by reference to the same-numbered exhibit to Form 8-K filed by the Registrant on November 12, 2010 (Commission File No. 000-32929).

(3) Incorporated by reference to Exhibit 4.2.3 to the Current Report on Form 8 K, filed by the Registrant on July 27, 2011 (Commission File No. 000 32929).

(4) Incorporated by reference to Exhibit 4.2.4 to the Current Report on Form 8 K, filed by the Registrant on May 24, 2012 (Commission File No. 000 32929).

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Item 17.Undertakings

The undersigned Registrant hereby undertakes:

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

(i) To include any prospectus required by Section 10(a)(3) of the Securities Act of 1933.

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

(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), (1)(ii) and (1)(iii) above do not apply if the registration statement is on Form S-3 or Form F-3 and the information required to be included in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the Commission by the Registrant pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934 that are incorporated by reference in the registration statement, or is contained in a form of prospectus filed pursuant to Rule 424(b) that is part of the registration statement.

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

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

(4) That, for the purpose of determining liability under the Securities Act of 1933 to any purchaser:

(A) Each prospectus filed by the Registrant pursuant to Rule 424(b)(3) shall be deemed to be part of the registration statement as of the date the filed prospectus was deemed part of and included in the registration statement; and

(B) Each prospectus required to be filed pursuant to Rule 424(b)(2), (b)(5), or (b)(7) as part of a registration statement in reliance on Rule 430B relating to an offering made pursuant to Rule 415(a)(1)(i), (vii), or (x) for the purpose of providing the information required by Section 10(a) of the Securities Act of 1933 shall be deemed to be part of and included in the registration statement as of the earlier of the date such form of prospectus is first used after effectiveness or the date of the first contract of sale of securities in the offering described in the prospectus. As provided in Rule 430B, for liability purposes of the issuer and any person that is at that date an underwriter, such date shall be deemed to be a new effective date of the registration statement relating to the securities in the registration statement to which that prospectus relates, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof. Provided, however, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into

the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such effective date, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such effective date; or

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(5) That, for the purpose of determining liability of the Registrant under the Securities Act of 1933 to any purchaser in the initial distribution of the securities: The undersigned Registrant undertakes that in a primary offering of securities of the undersigned Registrant pursuant to this registration statement, regardless of the underwriting method used to sell the securities to the purchaser, if the securities are offered or sold to such purchaser by means of any of the following communications, the undersigned Registrant will be a seller to the purchaser and will be considered to offer or sell such securities to such purchaser:

(i) Any preliminary prospectus or prospectus of the undersigned Registrant relating to the offering required to be filed pursuant to Rule 424;

(ii) Any free writing prospectus relating to the offering prepared by or on behalf of the undersigned Registrant or used or referred to by the undersigned Registrant;

(iii) The portion of any other free writing prospectus relating to the offering containing material information about the undersigned Registrant or its securities provided by or on behalf of the undersigned Registrant; and

(iv) Any other communication that is an offer in the offering made by the undersigned Registrant to the purchaser.

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

Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the Registrant pursuant to the provisions described in Item 15 above, or otherwise, the Registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the Registrant of expenses incurred or paid by a director, officer or controlling person of the Registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the Registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Act and will be governed by the final adjudication of such issue.

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POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below hereby constitutes and appoints Leonard Perham and James W. Sullivan, and each one of them, acting individually and without the other, as his or her attorney-in-fact, each with full power of substitution, for him in any and all capacities, to sign any and all amendments to this Registration Statement (including post-effective amendments), and to sign any registration statement for the same offering covered by this Registration Statement that is to be effective upon filing pursuant to Rule 462(b) promulgated under the Securities Act of 1933, and all post-effective amendments thereto, and to file the same, with exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, hereby ratifying and confirming all that each of said attorneys-in-fact or his substitute or substitutes may do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act of 1933, as amended, this Registration Statement has been signed by the following persons in the capacities and on the dates indicated.

Signature	Title	Date
/s/ Leonard Perham Leonard Perham	Chief Executive Officer, President and Director (principal executive officer)	October 18, 2017
/s/ James W. Sullivan James W. Sullivan	Vice President and Chief Financial Officer (principal financial and accounting officer)	October 18, 2017
/s/ Stephen L. Domenik Stephen L. Domenik	Director	October 18, 2017
/s/ Daniel Lewis Daniel Lewis	Director	October 18, 2017
/s/ Daniel J. O'Neil Daniel J. O'Neil	Director	October 18, 2017

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4.7	Form of Warrant Agreement*
5.1	<u>Opinion of Pillsbury Winthrop Shaw Pittman LLP**</u>
23.1	<u>Consent of Independent Registered Public Accounting Firm — BPM LLP**</u>
23.2	<u>Consent of Pillsbury Winthrop Shaw Pittman LLP (included in Exhibit 5.1)</u>
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* To be filed with a Current Report on Form 8-K or a Post-Effective Amendment to the registration statement.

** Filed herewith.

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(4) Incorporated by reference to Exhibit 4.2.4 to the Current Report on Form 8 K, filed by the Registrant on May 24, 2012 (Commission File No. 000 32929).

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SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, as amended, the Registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on a Form S-3 and has duly caused this Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Santa Clara, State of California, on October 18, 2017.

MoSys, Inc.

By: /s/ James W. Sullivan

Name: James W. Sullivan

Title: Vice President of Finance and Chief Financial Officer