

SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM S-8

REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933

AMTECH SYSTEMS, INC.
(Exact Name of Registrant as Specified in Its Charter)

Arizona
(State or Other Jurisdiction of
Incorporation or Organization)

86-0411215
(I.R.S. Employer
Identification Number)

131 South Clark Drive
Tempe, Arizona 85281
(Address of Principal Executive Offices, Including Zip Code)

Non-Employee Directors Stock Option Plan
(Full Title of the Plan)

Bradley C. Anderson
Chief Financial Officer
Amtech Systems, Inc.
131 South Clark Drive
Tempe, Arizona 85281
(480) 967-5146

Copy to:
Christopher D. Johnson, Esq.
Scott I. Gruber, Esq.
Squire, Sanders & Dempsey L.L.P.
1 E. Washington Street, Suite 2700
Phoenix, Arizona 85004
(602) 528-4000

(Name, Address and Telephone Number, including Area Code,
of Agent For Service)

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

Accelerated Filer

Non-accelerated Filer

Smaller Reporting Company

(Do not check if a smaller reporting company)

CALCULATION OF REGISTRATION FEE

Title of securities to be registered	Amount to be registered (1)(2)	Proposed maximum offering price per share (3)	Proposed maximum aggregate offering price (3)	Amount of registration fee
Common Stock, par value \$.01 per share	150,000 shares	\$10.105	\$1,515,750	\$108.07

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- (1) Pursuant to Rule 416(a) under the Securities Act of 1933, as amended (the "Securities Act"), this registration statement also covers an indeterminate number of additional shares of common stock of the registrant that become issuable as a result of any stock split, stock dividend, recapitalization or other similar transaction that results in an increase in the number of outstanding shares of common stock of the registrant. This registration statement shall cover such additional shares. In addition, pursuant to Rule 416(c) under the Securities Act, this registration statement also covers an indeterminate amount of interests to be offered or sold pursuant to registrant's Non-Employee Directors Stock Option Plan, as amended (the "Plan").
- (2) Pursuant to General Instruction E to Form S-8, a filing fee is only being paid with respect to the registration of additional securities for the Plan. This registration statement on Form S-8 relates to 150,000 additional shares of common stock, par value \$.01, of the registrant, issuable pursuant to the Plan. Registration statements on Form S-8 covering 200,000 shares (before stock splits and stock dividends) were previously filed with respect to the Plan (registration nos. 333-09911 filed August 9, 1996 and 333-131051 filed January 17, 2006).
- (3) Estimated pursuant to Rule 457(h) under the Securities Act solely for the purpose of calculating the registration fee. The proposed maximum offering price is based upon the average of the high and low prices of the common stock as reported on the NASDAQ Global Select Market on August 3, 2010.
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EXPLANATORY NOTE

INCORPORATION BY REFERENCE: Pursuant to General Instruction E to Form S-8, the contents of registration statement nos. 333-09911 and 333-131051 are incorporated herein by this reference.

REGISTRATION OF ADDITIONAL SHARES: This registration statement on Form S-8 is filed by the registrant to register 150,000 additional shares of common stock, par value \$.01 per share, of the registrant, which may be issued pursuant to an amendment to the Plan authorized by the shareholders of the registrant on March 11, 2010.

PART II INFORMATION REQUIRED IN THE REGISTRATION STATEMENT

Item 3. Incorporation of Documents by Reference.

In this registration statement, the terms “we,” “our,” “us,” “Amtech,” the “registrant” and the “Corporation” refer to Amtech System, Inc. The SEC allows us to incorporate by reference the information we file with the SEC, which means that we can disclose important information to you by referring you to those documents. The information that we incorporate by reference is considered to be part of this registration statement. Information that we file with the SEC in the future and incorporate by reference in this registration statement automatically updates and supersedes previously filed information as applicable.

We incorporate by reference into this registration statement the following documents filed by us with the SEC, other than any portion of any such documents that are not deemed “filed” under the Securities Exchange Act of 1934 (the “Exchange Act”) in accordance with the Exchange Act and applicable SEC rules:

- Annual Report on Form 10-K for the fiscal year ended September 30, 2009.
- Quarterly Report on Form 10-Q for the fiscal quarter ended December 31, 2009.
- Quarterly Report on Form 10-Q for the fiscal quarter ended March 31, 2010.
- Quarterly Report on Form 10-Q for the fiscal quarter ended June 30, 2010.
- The information specifically incorporated by reference into our Annual Report on Form 10-K for the fiscal year ended September 30, 2009 from our definitive proxy statement on Schedule 14A filed with the SEC on January 28, 2010.
- The description of our common stock contained in our registration statement filed pursuant to Section 12 of the Exchange Act; and
- All other reports filed that we have filed with the SEC pursuant to Section 13(a) or 15(d) of the Exchange Act subsequent to September 30, 2009.

We also incorporate by reference into this registration statement all documents (other than any portions of any such documents that are not deemed “filed” under the Exchange Act in accordance with the Exchange Act and applicable SEC rules) filed by us under Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act after the date of the initial filing of this registration statement and before the filing of a post-effective amendment to this registration statement which indicates all securities offered hereunder have been sold or that deregisters all securities then remaining unsold.

You may request a copy of these filings, which we shall deliver to you, together with all exhibits thereto, at no cost, by writing or telephoning us as follows:

Amtech Systems, Inc.
Attention: Robert T. Hass
131 South Clark Drive
Tempe, Arizona 85281
(480) 967-5146

Any statement contained in a document that is incorporated by reference will be modified or superseded for all purposes to the extent that a statement contained in this registration statement, or in any other document that is subsequently filed with the SEC and incorporated by reference, modifies or is contrary to that previous statement. Any statement so modified or superseded will not be deemed a part of this registration statement, except as so modified or superseded. Since information that we later file with the SEC will update and supersede previously incorporated information, you should look at all of the SEC filings that we incorporate by reference to determine if any of the statements in this registration statement or in any documents previously incorporated by reference have been modified or superseded.

Item 4. Description of Securities.

Not applicable.

Item 5. Interests of Named Experts and Counsel.

Not applicable.

Item 6. Indemnification of Directors and Officers.

Section 10-851 of Arizona's Revised Statutes enables a corporation to eliminate or limit personal liability of members of its board of directors for violations of their fiduciary duty of care. However, Arizona law does not permit the elimination of a director's or officer's liability: (i) in connection with a proceeding by or in the right of the corporation in which the director was adjudged liable to the corporation; and (ii) in connection with any other proceeding charging improper financial benefit to the director, whether or not involving action in the director's official capacity, in which the director was adjudged liable on the basis that financial benefit was improperly received by the director. Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers or persons controlling Amtech pursuant to the foregoing provision, Amtech has been informed that in the opinion of the SEC such indemnification is against public policy as expressed in such Act and is therefore unenforceable.

Pursuant to Amtech's Articles of Incorporation, it shall indemnify any and all of its existing and former directors, officers, employees, and agents against all expenses incurred by them and each of them, including, but not limited to, legal fees, judgments, penalties, and amounts paid in settlement or compromise, which may arise or be incurred, rendered, or levied in any legal action brought or threatened against any of them for or on account of any action or omission alleged to have been committed while acting within the scope of employment as director, officer, employee or agent of the corporation, whether or not any action is or has been filed against them and whether or not any settlement or compromise is approved by a court, indemnification shall be made by the corporation whether the legal action brought or threatened is by or in the right of the corporation or by any other person.

Whenever any existing or former director, officer, employee, or agent shall report to the President of the corporation or the chairman of the Board of Directors that he or she has incurred or may incur expenses, including, but not limited to, legal fees, judgments, penalties, and amounts paid in settlement or compromise in a legal action brought or threatened against him or her for or on account of any action or omission alleged to have been committed by him or her while acting within the scope of his or her employment as a director, officer, employee or agent of the corporation, the Board of Directors shall, at its next regular or at a special meeting held within a reasonable time thereafter, determine in good faith, whether in regard to the matter involved in the action or contemplated action, such person acted, failed to act, or refused to act willfully or with gross negligence or with fraudulent or criminal intent. If the Board of Directors determines, in good faith, that such person did not act, fail to act, or refuse to act willfully or with gross negligence or with fraudulent or criminal intent, in regard to the matter involved in the action or contemplated action, such person acted, failed to act, or refused to act willfully or with gross negligence or with fraudulent criminal intent, indemnification shall be mandatory and shall be automatically extended as specified herein; provided, that the corporation shall have the right to refuse indemnification in any instance in which the person to whom indemnification would otherwise have been applicable shall have unreasonably refused to permit the corporation, at its own expense and through counsel of its own choosing, to defend him or her in the action.

Amtech has purchased insurance on behalf of its directors and officers against certain liabilities that may be asserted against, or incurred by, such persons in their capacities as directors or officers of Amtech, or that may arise out of their status as directors or officers of the registrants, including liabilities under the federal and state securities laws.

Item 7. Exemption from Registration Claimed.

Not applicable.

Item 8. Exhibits.

Exhibit

No.	Description
4.3	Non-Employee Directors Stock Option Plan, as amended*
5.1	Opinion of Squire, Sanders & Dempsey L.L.P. regarding legality of shares**
23.1	Consent of Squire, Sanders & Dempsey L.L.P. (included in Exhibit 5.1 hereto)
23.2	Consent of Mayer Hoffman McCann, P.C.**
24	Powers of attorney **

* Incorporated herein by reference to Amtech's current report on Form 8-K, filed with the SEC on March 17, 2010

** Filed herewith

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 the 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 20% 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 (a)(1)(i) and (a)(1)(ii) of this section do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the SEC by the registrant pursuant to Section 13 or Section 15(d) of the Exchange Act that are incorporated by reference in the 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 (and, where applicable, each filing of an employee benefit plan's annual report pursuant to 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 of 1933 may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Act and will be governed by the final adjudication of such issue.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form 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 Tempe, State of Arizona, on August 6, 2010.

Amtech Systems, Inc.

By: /s/ Bradley C. Anderson
 Bradley C. Anderson
 Vice President and Chief Financial Officer

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

<u>Signature</u>	<u>Title</u>	<u>Date</u>
* <u>Jong S. Whang</u>	Chief Executive Officer and Director (Principal Executive Officer)	August 6, 2010
* <u>Bradley C. Anderson</u>	Vice President -- Finance, Chief Financial Officer, Treasurer and Secretary (Principal Financial Officer)	August 6, 2010
* <u>Robert T. Hass</u>	Chief Accounting Officer (Principal Accounting Officer)	August 6, 2010
* <u>Michael Gamreiter</u>	Director	August 6, 2010
* <u>Alfred W. Giese</u>	Director	August 6, 2010
* <u>Egbert Jan Geert Goudena</u>	Director	August 6, 2010
* <u>Jeong Mo Hwang</u>	Director	August 6, 2010
* <u>Robert F. King</u>	Director	August 6, 2010

* By: /s/ Bradley C. Anderson
 Bradley C. Anderson, Attorney-In-Fact **

** By authority of the power of attorney filed as Exhibit 24 hereto.

EXHIBIT INDEX

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23.2	Consent of Mayer Hoffman McCann, P.C.**
24	Powers of attorney **

* Incorporated herein by reference to Amtech's current report on Form 8-K, filed with the SEC on March 17, 2010

** Filed herewith

August 6, 2010

Securities and Exchange Commission
450 Fifth Street, N.W.
Washington, D.C. 20549

RE: Amtech Systems, Inc.—Registration Statement on Form S-8 (Non-Employee Directors Stock Option Plan)

Ladies and Gentlemen:

We have acted as counsel to Amtech Systems, Inc. an Arizona corporation (the "Company"), in connection with its registration statement on Form S-8 (the "Registration Statement") relating to the registration under the Securities Act of 1933, as amended (the "Act"), of 150,000 shares (the "Shares") of its common stock, \$.01 par value per share ("Common Stock"), issuable pursuant to the Company's Non-Employee Directors Stock Option Plan, as amended through March 11, 2010. At the Company's annual meeting of stockholders held on March 11, 2010, the stockholders approved an amendment to increase by 150,000 the number of shares issuable pursuant to the Plan. Accordingly, the Registration Statement relates to the Shares, which are in addition to the 200,000 shares of Common Stock previously authorized for issuance under the Plan, and in respect of which the Company filed registration statements on Form S-8 (File Nos. 333-09911 and 333-131051) filed with the Securities and Exchange Commission (the "Commission") on August 9, 1996 and January 17, 2006, respectively.

In connection with the Registration Statement, we have examined such documents, corporate records and other instruments and undertaken such further inquiry as we have deemed necessary or appropriate for purposes of this opinion, including, but not limited to, examination of the Registration Statement and the Certificate of Incorporation and Bylaws of the Company, including all amendments thereto. In our examination, we have assumed the genuineness of all signatures, the legal capacity of all natural persons, the accuracy and completeness of all documents submitted to us, the authenticity of all original documents, and the conformity to authentic original documents of all documents submitted to us as copies (including telecopies). This opinion letter is given, and all statements herein are made, in the context of the foregoing.

Based upon, subject to and limited by the foregoing, we are of the opinion that (i) the Shares when sold, will be duly authorized, validly issued, fully paid and nonassessable.

We hereby consent to the use of this opinion as an exhibit to the Registration Statement. In giving this consent, we do not thereby admit that we are "experts" within the meaning of the Act, nor do we admit that we are within the category of persons whose consent is required under Section 7 of the Act or under the rules and regulations of the Commission.

We do not express an opinion on any matters other than those expressly set forth in this letter.

Very truly yours,

/s/ Squire, Sanders & Dempsey L.L.P.
SQUIRE, SANDERS & DEMPSEY L.L.P.

Consent of Independent Registered Public Accounting Firm

As independent registered public accountants, we hereby consent to the incorporation by reference in this registration statement on Form S-8 pertaining to the Amtech Systems, Inc. Non-Employee Directors Stock Option Plan of our report dated November 24, 2009, relating to the consolidated financial statements of Amtech Systems, Inc. and subsidiaries as of September 30, 2009 and 2008 and the related consolidated statements of operations, stockholders' equity and comprehensive income (loss) and cash flows for each of the years in the three year period ended September 30, 2009, included in the 2009 Annual Report on Form 10-K for the year ended September 30, 2009, filed with the Securities and Exchange Commission.

/s/ Mayer Hoffman McCann P.C.

MAYER HOFFMAN MCCANN P.C.

Phoenix, Arizona
August 6, 2010

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Jong S. Whang, Bradley C. Anderson and Robert T. Hass, and each of them, his true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution, for him and in his name, place and stead, in any and all capacities, to sign any and all amendments to this registration statement, and to file the same, with all exhibits thereto, and other documents in connection therewith with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, and fully and to all intents and purposes as he might or could do in person hereby ratifying and confirming all that said attorney-in-fact and agents, or his substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

<u>Signature</u>	<u>Title</u>	<u>Date</u>
/s/ Jong S. Whang Jong S. Whang	Chief Executive Officer and Director (Principal Executive Officer)	August 4, 2010
/s/ Bradley C. Anderson Bradley C. Anderson	Vice President -- Finance, Chief Financial Officer, Treasurer and Secretary (Principal Financial Officer)	August 4, 2010
/s/ Robert T. Hass Robert T. Hass	Chief Accounting Officer (Principal Accounting Officer)	August 4, 2010
/s/ Michael Gamreiter Michael Gamreiter	Director	August 4, 2010
/s/ Alfred W. Giese Alfred W. Giese	Director	August 4, 2010
/s/ Egbert Jan Geert Goudena Egbert Jan Geert Goudena	Director	August 4, 2010
/s/ Jeong Mo Hwang Jeong Mo Hwang	Director	August 4, 2010
/s/ Robert F. King Robert F. King	Director	August 4, 2010
