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**SECURITIES AND EXCHANGE COMMISSION**  
WASHINGTON, D.C. 20549

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**FORM S-8/A**  
**POST-EFFECTIVE AMENDMENT NO. 1**  
**REGISTRATION STATEMENT UNDER**  
**THE SECURITIES ACT OF 1933**

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**AMTECH SYSTEMS, INC.**

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(Exact name of registrant as specified in its charter)

**Arizona**

**86-0411215**

(State or other jurisdiction of  
incorporation or organization)

(I.R.S. Employer  
Identification No.)

**131 South Clark Drive, Tempe, Arizona**

**85281**

(Address of Principal Executive offices)

(Zip Code)

**Non-Employee Directors Stock Option Plan**

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(Full title of the plan)

**Robert T. Hass  
Amtech Systems, Inc.  
131 South Clark Drive  
Tempe, Arizona 85281**

(Name and address of agent for service)

**(480) 967-5146**

(Telephone number, including area code, of agent for service)

**With copy to:**

**Christopher D. Johnson, Esq.  
Christopher A. Van Tuyl, Esq.  
Squire, Sanders & Dempsey L.L.P.  
40 North Central Avenue, Suite 2700  
Phoenix, Arizona 85004  
(602) 528-4000**

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#### **EXPLANATORY NOTE**

Pursuant to a Registration Statement on Form S-8 filed by Amtech Systems, Inc. (“Amtech” or the “Registrant”) with the Securities and Exchange Commission (“SEC”) on August 9, 1996 (Registration No. 333-09911), Amtech registered 200,000 shares of its common stock for issuance under the Non-Employee Directors Stock Option Plan (the “Plan”), which was subsequently reduced to 100,000 shares of common stock as a result of a reverse two-to-one stock split of Amtech’s common stock on March 15, 1999. At Amtech’s annual meeting of shareholders held on July 8, 2005, shareholders approved certain amendments to the Plan. The purpose of this Amendment (this “Amendment”) is to amend the previously filed Form S-8 described above by filing the amendments to the Plan as approved by Amtech’s shareholders.

**PART I**

**INFORMATION REQUIRED IN THE SECTION 10(a) PROSPECTUS**

The documents containing the information specified in Part I, Items 1 and 2, will be delivered to current and former directors in accordance with Form S-8 and Rule 428 of the Securities Act of 1933, as amended (the "Securities Act").

**PART II**

**INFORMATION REQUIRED IN THE REGISTRATION STATEMENT**

**Item 3. Incorporation of Documents by Reference.**

The following documents are hereby incorporated by reference into this Amendment and shall be deemed a part hereof:

- (a) the Registration Statement filed with the SEC by Amtech on Form S-8 on August 9, 1996 (Registration No. 333-09911);
- (b) the Annual Report of Amtech on Form 10-K for the fiscal year ended September 30, 2005;
- (c) all other reports filed by Amtech with the Securities and Exchange Commission pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934 (the "Exchange Act") subsequent to September 30, 2005; and
- (d) the description of Amtech's common stock contained in Amtech's registration statement filed pursuant to Section 12 of the Exchange Act.

All documents subsequently filed by Amtech with the SEC pursuant to Sections 13(a), 13(c), 14 or 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 such documents.

**Item 4. Description of Securities.**

Not applicable.

**Item 5. Interests of Named Experts and Counsel.**

Not applicable.

**Item 6. Indemnification of Directors and Officers.**

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.

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.

**Item 7. Exemption from Registration Claimed.**

Not applicable.

**Item 8. Exhibits.**

Exhibit Number	Description
4.1	Non-Employee Directors Stock Option Plan*
4.2	Amendment to the Non-Employee Directors Stock Option Plan, effective July 8, 2005**
4.3	Form of Stock Option Agreement*
5	Opinion of Squire, Sanders & Dempsey L.L.P., including consent*
23.1	Consent of Counsel (see Exhibit 5)
23.2	Consent of Mayer Hoffman McCann P.C.***
23.3	Consent of KPMG LLP***
24	Powers of Attorney (included on signature page)

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\* Incorporated herein by reference to Amtech's Form S-8, Registration No. 333-09911, filed with the SEC on August 9, 1996.

\*\* Incorporated herein by reference to Amtech's Form 10-K, filed with the SEC on December 29, 2005.

\*\*\* 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 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 SEC pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than 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 (a)(1)(i) and (a)(1)(ii) 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 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.

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

(i) If the Registrant is relying on Rule 430B under the Securities Act:

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

(B) Each prospectus required to be filed pursuant to Rule 424(b)(2), (b)(5), or (b)(7) under the Securities Act as part of this registration statement in reliance on Rule 430B under the Securities Act relating to an offering made pursuant to Rule 415(a)(1)(i), (vii), or (x) under the Securities Act for the purpose of providing the information required by Section 10(a) of the Securities Act shall be deemed to be part of and included in this 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 under the Securities Act, 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 this registration statement, 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 this registration statement or made in a document incorporated or deemed incorporated by reference into this registration statement or prospectus that is part of this 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 this registration statement or prospectus that was part of this registration statement or made in any such document immediately prior to such effective date; or

(ii) If the Registrant is subject to Rule 430C under the Securities Act, each prospectus filed pursuant to Rule 424(b) under the Securities Act as part of a registration statement relating to an offering, other than registration statements relying on Rule 430B under the Securities Act or other than prospectuses filed in reliance on Rule 430A under the Securities Act, shall be deemed to be part of and included in this registration statement as of the date it is first used after effectiveness. Provided, however, that no statement made in a registration statement or prospectus that is part of this registration statement or made in a document incorporated or deemed incorporated by reference into this registration statement or prospectus that is part of this registration statement will, as to a purchaser with a time of contract of sale prior to such first use, supersede or modify any statement that was made in this registration statement or prospectus that was part of this registration statement or made in any such document immediately prior to such date of first use.

(5) That, for the purpose of determining liability of the Registrant under the Securities Act to any purchaser in the initial distribution of the securities, in a primary offering of securities of the 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 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 Registrant relating to the offering required to be filed pursuant to Rule 424 under the Securities Act;

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

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

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

(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 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 of 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 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/A 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 January 13, 2006.

AMTECH SYSTEMS, INC.

By:           /s/ Robert T. Hass  
Name: Robert T. Hass  
Title: Vice President – Finance, Chief Financial Officer, Secretary  
and Treasurer

KNOW ALL MEN BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Jong S. Whang and Robert T. Hass, and each of them, his true and lawful attorney-in-fact and agent, with full power of substitution and re-substitution, for such person and in his name, place and stead, in any and all capacities, in connection with the registrant’s registration statement on Form S-8 under the Securities Act of 1933, including to sign the registration statement in the name and on behalf of the registrant or on behalf of the undersigned as a director or officer of the registrant, and any and all amendments or supplements to the registration statement, including any and all stickers and post-effective amendments to the registration statement and to sign any and all additional registration statements relating to the same offering of securities as those that are covered by the registration statement that are filed pursuant to Rule 462(b) under the Securities Act of 1933, and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission and any applicable securities exchange or securities self-regulatory body, granting unto said attorney-in-fact and agent, 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, as fully to all intents and purposes as he might or could do in person, hereby ratifying and confirming all that said attorney-in-fact and agent, or his substitutes or substitute, may lawfully do or cause to be done by virtue hereof.

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 dates indicated.

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u>/s/ Jong S. Whang</u> Jong S. Whang	Chairman of the Board, President and Chief Executive Officer	January 13, 2006
<u>/s/ Robert T. Hass</u> Robert T. Hass	Vice President – Finance, Chief Financial Officer, Secretary, Treasurer and Director	January 13, 2006
<u>/s/ Robert M. Averick</u> Robert M. Averick	Director	January 13, 2006
<u>/s/ Lawrence D. Firestone</u> Lawrence D. Firestone	Director	January 13, 2006
<u>/s/ Robert F. King</u> Robert F. King	Director	January 13, 2006



## EXHIBIT INDEX

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CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Stockholders  
Amtech Systems, Inc.:

As independent registered public accountants, we hereby consent to the incorporation by reference in the registration statement No. 333-09911 on Form S-8/A of Amtech Systems, Inc. of our report, dated December 15, 2005, with respect to the consolidated balance sheet of Amtech Systems, Inc. and subsidiaries as of September 30, 2005 and the related consolidated statements of operations, stockholders' equity and comprehensive income (loss) and cash flows for the year then ended, included in the 2005 annual report on Form 10-K of Amtech Systems, Inc. and subsidiaries.

/s/ Mayer Hoffman McCann P.C.

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Mayer Hoffman McCann P.C.

Phoenix, Arizona  
January 13, 2006

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

The Board of Directors  
Amtech Systems, Inc.:

We consent to the incorporation by reference in the registration statement (No. 333-09911) on Form S-8/A of Amtech Systems, Inc. of our report dated January 10, 2005, with respect to the consolidated balance sheet of Amtech Systems, Inc. and subsidiaries as of September 30, 2004, and the related consolidated statements of operations, stockholders' equity and comprehensive income (loss), and cash flows for the years ended September 30, 2004 and 2003, which report appears in the annual report on Form 10-K of Amtech Systems, Inc. for the year ended September 30, 2005.

/s/ KPMG LLP

Phoenix, Arizona  
January 13, 2006