

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

**FORM S-1
REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933**

AMTECH SYSTEMS, INC.

(Exact name of registrant as specified in its charter)

Arizona
(State of incorporation)

3559
(Primary Standard Industrial
Classification Code No.)

86-0411215
(I.R.S. Employer Identification No.)

**131 South Clark Drive
Tempe, Arizona 85281
(480) 967-5146**

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

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

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

with copies to:

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

**Jeffrey Harrell, Esq.
Gabriella Lombardi, Esq.
Pillsbury Winthrop Shaw Pittman LLP
2475 Hanover Street
Palo Alto, California 94304
(650) 233-4500**

Approximate date of commencement of proposed sale to the public: As soon as practicable after this registration statement becomes effective.

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 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, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. – See SEC File No. 333-139592.

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

CALCULATION OF REGISTRATION FEE

Title of Each Class of Securities to be Registered	Amount to be Registered (1)	Proposed Maximum Offering Price Per Share	Proposed Maximum Aggregate Offering Price	Amount of Registration Fee
Common Stock, par value \$0.01 per share	488,750 shares	\$ 7.05	\$ 3,445,688	\$ 369

(1) The 488,750 shares of common stock being registered in this registration statement are in addition to the 2,530,000 shares of common stock registered pursuant to the registrant's prior Registration Statement on Form S-1 (No. 333-139592).

This registration statement shall become effective upon filing with the Securities and Exchange Commission in accordance with Rule 462(b) under the Securities Act of 1933, as amended.

EXPLANATORY NOTE

This registration statement is being filed with the Securities and Exchange Commission (the "Commission") by Amtech Systems, Inc. (the "Company") pursuant to Rule 462(b) and General Instruction V of Form S-1, both as promulgated under the Securities Act of 1933, as amended. The contents of the registration statement on Form S-1 (File No. 333-139592) filed by the Company with the Commission, as amended, including each of the documents included therein or incorporated by reference therein and all exhibits thereto, which was declared effective by the Commission on January 31, 2007, are incorporated herein by reference into, and shall be deemed part of, this registration statement.

PART II. INFORMATION NOT REQUIRED IN PROSPECTUS

ITEM 16. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES.

All exhibits filed with or incorporated by reference in the registration statement on Form S-1, as amended, (File No. 333-139592) are incorporated by reference into, and shall be deemed to be a part of, this registration statement, except for the following which are filed herewith:

<u>EXHIBIT NO.</u>	<u>DESCRIPTION</u>	<u>METHOD OF FILING</u>
5.1	Opinion of Squire, Sanders & Dempsey L.L.P.	*
23.1	Consent of Independent Registered Public Accounting Firm - Mayer Hoffman McCann P.C.	*
23.2	Consent of Independent Registered Public Accounting Firm - KPMG LLP	*
24	Powers of Attorney	**

* Filed herewith.

** Previously filed with Amtech's registration statement on Form S-1 filed with the Securities and Exchange Commission on December 22, 2006.

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-1 and has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized.

February 1, 2007

AMTECH SYSTEMS, INC.

By: /s/ Bradley C. Anderson

Bradley C. Anderson,
Vice President – Finance and
Chief Financial Officer

Pursuant to the requirements of the Securities Exchange Act of 1934, this registration statement has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated:

<u>SIGNATURE</u>	<u>TITLE</u>	<u>DATE</u>
<u>*</u>	Chairman of the Board, President and Chief Executive Officer (Principal Executive Officer)	February 1, 2007
Jong S. Whang		
<u>/s/ Bradley C. Anderson</u>	Vice President – Finance and Chief Financial Officer (Principal Financial Officer)	February 1, 2007
Bradley C. Anderson		
<u>*</u>	Chief Accounting Officer (Principal Accounting Officer)	February 1, 2007
Robert T. Hass		
<u>*</u>	Director	February 1, 2007
Lawrence D. Firestone		
<u>*</u>	Director	February 1, 2007
Robert F. King		

*By: /s/ Bradley C. Anderson

Bradley C. Anderson, Attorney-In-Fact**

**By authority of the power of attorney filed as Exhibit 24 to Amtech's registration statement on Form S-1 (File No. 333-139592).

EXHIBIT INDEX

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February 1, 2007

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

RE: AMTECH SYSTEMS, INC. – REGISTRATION STATEMENT ON FORM S-1

Ladies and Gentlemen:

We have acted as counsel to Amtech Systems, Inc., an Arizona corporation (the “Company”), in connection with the registration statement on Form S-1 (the “Rule 462(b) Registration Statement”) filed with the Securities and Exchange Commission (the “Commission”) on the date hereof pursuant to Rule 462(b) under the Securities Act of 1933, as amended (the “Securities Act”), for the registration of the sale of shares of the Company’s Common Stock, par value \$.01 per share (the “Securities”) by the Company.

In that connection, 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, the Rule 462(b) Registration Statement, the Articles of Incorporation and Bylaws of the Company, including all amendments thereto, and the form of underwriting agreement by and among the Company and C.E. Unterberg, Towbin LLC, as the underwriters. 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 when the Securities are issued, such Securities will be duly authorized, validly issued, fully paid and nonassessable.

We hereby consent to the use of this opinion as an exhibit to the Rule 462(b) 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 Securities and Exchange 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.

INDEPENDENT AUDITORS' CONSENT

To the Stockholders
Amtech Systems, Inc.:

We consent to the use of our report, dated December 21, 2006, included in Amendment No. 2 to the registration statement on Form S-1, dated January 30, 2007 (No. 333-139592), with respect to the consolidated balance sheets of Amtech Systems, Inc. and subsidiaries as of September 30, 2006 and 2005 and the related consolidated statements of operations, stockholders' equity and comprehensive income (loss) and cash flows for the years then ended, incorporated herein by reference and to the reference to our firm under the heading "Experts" in the prospectus.

/s/ Mayer Hoffman McCann P.C.

Phoenix, Arizona
February 1, 2007

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

The Board of Directors of
Amtech Systems, Inc.:

We consent to the use of our report, included in Amendment No. 2 to the registration statement on Form S-1, dated January 30, 2007 (No. 333-139592), incorporated herein by reference and to the reference to our firm under the heading "Experts" in the prospectus.

/s/ KPMG LLP

Phoenix, Arizona
February 1, 2007