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UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
Washington, D.C. 20549

**SCHEDULE 13G**

Under the Securities Exchange Act of 1934  
(Amendment No.        )\*

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**Amtech Systems Inc**

(Name of Issuer)

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**COMMON**

(Title of Class of Securities)

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**032332504**

(CUSIP Number)

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**12/31/2008**

(Date of Event Which Requires Filing of this Statement)

Check the appropriate box to designate the rule pursuant to which this Schedule is filed:

- Rule 13d-1(b)  
 Rule 13d-1(c)  
 Rule 13d-1(d)

\* The remainder of this cover page shall be filled out for a reporting person's initial filing on this form with respect to the subject class of securities, and for any subsequent amendment containing information which would alter the disclosures provided in a prior cover page.

The information required in the remainder of this cover page shall not be deemed to be "filed" for the purpose of Section 18 of the Securities Exchange Act of 1934 ("Act") or otherwise subject to the liabilities of that section of the Act but shall be subject to all other provisions of the Act (however, see the Notes).

**Persons who respond to the collection of information contained in this form are not required to respond unless the form displays a currently valid OMB control number.**

1. Names of Reporting Persons.  
I.R.S. Identification Nos. of above persons (entities only)

ESSEX INVESTMENT MANAGEMENT COMPANY, LLC  
#04-3409177

2. Check the Appropriate Box if a Member of a Group (See Instructions)  
(a)   
(b)

3. SEC Use Only

4. Citizenship or Place of Organization

BOSTON, MASSACHUSETTS

5. Sole Voting Power

666,297

Number of  
Shares  
Beneficially by  
Owned by  
Each  
Reporting  
Person  
With:

6. Shared Voting Power

0

7. Sole Dispositive Power

696,203

8. Shared Dispositive Power

0

9. Aggregate Amount Beneficially Owned by Each Reporting Person

696,203

10. Check if the Aggregate Amount in Row (9) Excludes Certain Shares (See Instructions)

11. Percent of Class Represented by Amount in Row (9)

7.65%

12. Type of Reporting Person (See Instructions)

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## INSTRUCTIONS FOR SCHEDULE 13G

### Instructions for Cover Page

- (1) *Names and I.R.S. Identification Numbers of Reporting Persons*—Furnish the full legal name of each person for whom the report is filed—i.e., each person required to sign the schedule itself—including each member of a group. Do not include the name of a person required to be identified in the report but who is not a reporting person. Reporting persons that are entities are also requested to furnish their I.R.S. identification numbers, although disclosure of such numbers is voluntary, not mandatory (see “SPECIAL INSTRUCTIONS FOR COMPLYING WITH SCHEDULE 13G” below).
- (2) If any of the shares beneficially owned by a reporting person are held as a member of a group and that membership is expressly affirmed, please check row 2(a). If the reporting person disclaims membership in a group or describes a relationship with other persons but does not affirm the existence of a group, please check row 2(b) [unless it is a joint filing pursuant to Rule 13d-1(k)(1) in which case it may not be necessary to check row 2(b)].
- (3) The third row is for SEC internal use; please leave blank.
- (4) *Citizenship or Place of Organization*—Furnish citizenship if the named reporting person is a natural person. Otherwise, furnish place of organization.
- (5)-(9), (11) *Aggregate Amount Beneficially Owned By Each Reporting Person, Etc.*—Rows (5) through (9) inclusive, and (11) are to be completed in accordance with the provisions of Item 4 of Schedule 13G. All percentages are to be rounded off to the nearest tenth (one place after decimal point).
- (10) Check if the aggregate amount reported as beneficially owned in row (9) does not include shares as to which beneficial ownership is disclaimed pursuant to Rule 13d-4 (17 CFR 240.13d-4) under the Securities Exchange Act of 1934.
- (12) *Type of Reporting Person*—Please classify each “reporting person” according to the following breakdown (see Item 3 of Schedule 13G) and place the appropriate symbol on the form:

<u>Category</u>	<u>Symbol</u>
Broker Dealer	BD
Bank	BK
Insurance Company	IC
Investment Company	IV
Investment Adviser	IA
Employee Benefit Plan, Pension Fund, or Endowment Fund	EP
Parent Holding Company/Control Person	HC
Savings Association	SA
Church Plan	CP
Corporation	CO
Partnership	PN
Individual	IN
Other	OO

### Notes:

Attach as many copies of the second part of the cover page as are needed, one reporting person per page.

Filing persons may, in order to avoid unnecessary duplication, answer items on the schedules (Schedule 13D, 13G or 14D-1) by appropriate cross references to an item or items on the cover page(s). This approach may only be used where the cover page item or items provide all the disclosure required by the schedule item. Moreover, such a use of a cover page item will result in the item becoming a part of the schedule and accordingly being considered as “filed” for purposes of Section 18 of the Securities Exchange Act or otherwise subject to the liabilities of that section of the Act.

Reporting persons may comply with their cover page filing requirements by filing either completed copies of the blank forms available from the Commission, printed or typed facsimiles, or computer printed facsimiles, provided the documents filed have identical formats to the forms prescribed in the Commission’s regulations and meet existing Securities Exchange Act rules as to such matters as clarity and size (Securities Exchange Act Rule 12b-12).

### SPECIAL INSTRUCTIONS FOR COMPLYING WITH SCHEDULE 13G

Under Sections 13(d), 13(g), and 23 of the Securities Exchange Act of 1934 and the rules and regulations thereunder, the Commission is authorized to solicit the information required to be supplied by this schedule by certain security holders of certain issuers.

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Disclosure of the information specified in this schedule is mandatory, except for I.R.S. identification numbers, disclosure of which is voluntary. The information will be used for the primary purpose of determining and disclosing the holdings of certain beneficial owners of certain equity securities. This statement will be made a matter of public record. Therefore, any information given will be available for inspection by any member of the public.

Because of the public nature of the information, the Commission can use it for a variety of purposes, including referral to other governmental authorities or securities self-regulatory organizations for investigatory purposes or in connection with litigation involving the Federal securities laws or other civil, criminal or regulatory statutes or provisions. I.R.S. identification numbers, if furnished, will assist the Commission in identifying security holders and, therefore, in promptly processing statements of beneficial ownership of securities.

Failure to disclose the information requested by this schedule, except for I.R.S. identification numbers, may result in civil or criminal action against the persons involved for violation of the Federal securities laws and rules promulgated thereunder.

#### **GENERAL INSTRUCTIONS**

- A. Statements filed pursuant to Rule 13d-1(b) containing the information required by this schedule shall be filed not later than February 14 following the calendar year covered by the statement or within the time specified in Rules 13d-1(b)(2) and 13d-2(c). Statements filed pursuant to Rule 13d-1(c) shall be filed within the time specified in Rules 13d-1(c), 13d-2(b) and 13d-2(d). Statements filed pursuant to Rule 13d-1(d) shall be filed not later than February 14 following the calendar year covered by the statement pursuant to Rules 13d-1(d) and 13d-2(b).
- B. Information contained in a form which is required to be filed by rules under section 13(f) (15 U.S.C. 78m(f)) for the same calendar year as that covered by a statement on this schedule may be incorporated by reference in response to any of the items of this schedule. If such information is incorporated by reference in this schedule, copies of the relevant pages of such form shall be filed as an exhibit to this schedule.
- C. The item numbers and captions of the items shall be included but the text of the items is to be omitted. The answers to the items shall be so prepared as to indicate clearly the coverage of the items without referring to the text of the items. Answer every item. If an item is inapplicable or the answer is in the negative, so state.

**Item 1.** (a) Name of Issuer-

**Amtech Systems Inc.**

(b) Address of Issuer's Principal Executive Offices:

**131 South Clark Drive Tempe, AZ 85281**

**Item 2.** (a) Name of Person Filing:

**ESSEX INVESTMENT MANAGEMENT COMPANY, LLC**

(b) Address of Principal Business Office or, if none, Residence:

**125 High Street, 29<sup>th</sup> Floor Boston, MA 02110-2702**

(c) Citizenship:

**U.S.A**

(d) Title of Class of Securities:

**Common**

(e) CUSIP Number:

**032332504**

**Item 3. If this statement is filed pursuant to §§240.13d-1(b) or 240.13d-2(b) or (c), check whether the person filing is a:**

- (a)  Broker or dealer registered under section 15 of the Act (15 U.S.C. 78o).
- (b)  Bank as defined in section 3(a)(6) of the Act (15 U.S.C. 78c).
- (c)  Insurance company as defined in section 3(a)(19) of the Act (15 U.S.C. 78c).
- (d)  Investment company registered under section 8 of the Investment Company Act of 1940 (15 U.S.C 80a-8).
- (e)  **An investment adviser in accordance with §240.13d-1(b)(1)(ii)(E);**
- (f)  An employee benefit plan or endowment fund in accordance with §240.13d-1(b)(1)(ii)(F);
- (g)  A parent holding company or control person in accordance with §240.13d-1(b)(1)(ii)(G);
- (h)  A savings associations as defined in Section 3(b) of the Federal Deposit Insurance Act (12 U.S.C. 1813);
- (i)  A church plan that is excluded from the definition of an investment company under section 3(c)(14) of the Investment Company Act of 1940 (15 U.S.C. 80a-3);
- (j)  Group, in accordance with §240.13d-1(b)(1)(ii)(J).

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**Item 4. Ownership.**

Provide the following information regarding the aggregate number and percentage of the class of securities of the issuer identified in Item 1.

(a) Amount beneficially owned:

696,203

(b) Percent of class:

7.65%

(c) Number of shares as to which the person has:

(i) Sole power to vote or to direct the vote

666,297

(ii) Shared power to vote or to direct the vote

0

(iii) Sole power to dispose or to direct the disposition of

696,203

(iv) Shared power to dispose or to direct the disposition of

0

*Instruction.* For computations regarding securities which represent a right to acquire an underlying security see §240.13d-3(d)(1).

**Item 5. Ownership of Five Percent or Less of a Class**

If this statement is being filed to report the fact that as of the date hereof the reporting person has ceased to be the beneficial owner of more than five percent of the class of securities, check the following

*Instruction:* Dissolution of a group requires a response to this item.

**Item 6. Ownership of More than Five Percent on Behalf of Another Person.**

If any other person is known to have the right to receive or the power to direct the receipt of dividends from, or the proceeds from the sale of, such securities, a statement to that effect should be included in response to this item and, if such interest relates to more than five percent of the class, such person should be identified. A listing of the shareholders of an investment company registered under the Investment Company Act of 1940 or the beneficiaries of employee benefit plan, pension fund or endowment fund is not required.

**Item 7. Identification and Classification of the Subsidiary Which Acquired the Security Being Reported on By the Parent Holding Company**

If a parent holding company has filed this schedule, pursuant to Rule 13d-1(b)(ii)(G), so indicate under Item 3(g) and attach an exhibit stating the identity and the Item 3 classification of the relevant subsidiary. If a parent holding company has filed this schedule pursuant to Rule 13d-1(c) or Rule 13d-1(d), attach an exhibit stating the identification of the relevant subsidiary.

**Item 8. Identification and Classification of Members of the Group**

If a group has filed this schedule pursuant to §240.13d-1(b)(1)(ii)(J), so indicate under Item 3(j) and attach an exhibit stating the identity and Item 3 classification of each member of the group. If a group has filed this schedule pursuant to §240.13d-1(c) or §240.13d-1(d), attach an exhibit stating the identity of each member of the group.

**Item 9. Notice of Dissolution of Group**

Notice of dissolution of a group may be furnished as an exhibit stating the date of the dissolution and that all further filings with respect to transactions in the security reported on will be filed, if required, by members of the group, in their individual capacity. See Item 5.

**Item 10. Certification**

(a) The following certification shall be included if the statement is filed pursuant to §240.13d-1(b):

By signing below I certify that, to the best of my knowledge and belief, the securities referred to above were acquired and are held in the ordinary course of business and were not acquired and are not held for the purpose of or with the effect of changing or influencing the control of the issuer of the securities and were not acquired and are not held in connection with or as a participant in any transaction having that purpose or effect.

(b) The following certification shall be included if the statement is filed pursuant to §240.13d-1(c):

By signing below I certify that, to the best of my knowledge and belief, the securities referred to above were not acquired and are not held for the purpose of or with the effect of changing or influencing the control of the issuer of the securities and were not acquired and are not held in connection with or as a participant in any transaction having that purpose or effect.

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**SIGNATURE**

After reasonable inquiry and to the best of my knowledge and belief, I certify that the information set forth in this statement is true, complete and correct.

2/12/09

Date

/s/ Michael S. McCarthy

Signature

Michael S. McCarthy

Sr. Vice President & Director of Operations

Name/Title

The original statement shall be signed by each person on whose behalf the statement is filed or his authorized representative. If the statement is signed on behalf of a person by his authorized representative other than an executive officer or general partner of the filing person, evidence of the representative's authority to sign on behalf of such person shall be filed with the statement, provided, however, that a power of attorney for this purpose which is already on file with the Commission may be incorporated by reference. The name and any title of each person who signs the statement shall be typed or printed beneath his signature.

*NOTE:* Schedules filed in paper format shall include a signed original and five copies of the schedule, including all exhibits. See §240.13d-7 for other parties for whom copies are to be sent.

**Attention: Intentional misstatements or omissions of fact constitute Federal criminal violations (See 18 U.S.C. 1001)**