

SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

SCHEDULE 13G

(Rule 13d-102)

INFORMATION TO BE INCLUDED IN STATEMENTS FILED PURSUANT TO RULES 13d-1(b), (c), AND (d) AND AMENDMENTS THERETO
FILED PURSUANT TO RULE 13d-2

(Amendment No. _____)*

MERCURY COMPUTER SYSTEMS, INC.

(Name of Issuer)

COMMON STOCK

(Title of Class of Securities)

589378108

(CUSIP Number)

December 31, 2005

(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 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).

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

James R. Bertelli

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

United States

- | | | |
|--------------------------|-----------------------------|------------------------|
| | 5. Sole Voting Power | 1,090,053 |
| NUMBER OF
SHARES | 6. Shared Voting Power | |
| BENEFICIALLY
OWNED BY | 7. Sole Dispositive Power | 0 |
| EACH | 8. Shared Dispositive Power | |
| REPORTING
PERSON | | 1,083,527 ¹ |
| WITH: | | 0 |

9. Aggregate Amount Beneficially Owned by Each Reporting Person

1,090,053

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

²

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

5.1%

12. Type of Reporting Person (See Instructions)

IN

¹ Excludes 6,526 shares of restricted stock, as to which shares Mr. Bertelli has no dispositive power.

² Excludes 12,400 shares held by Mr. Bertelli's spouse, as to which shares Mr. Bertelli disclaims beneficial ownership.

Item 1(a). Name of Issuer:

Mercury Computer Systems, Inc. (the "Issuer")

Item 1(b). Address of Issuer's Principal Executive Offices:

199 Riverneck Road
Chelmsford, MA 01824

Item 2(a). Name of Person Filing:

James R. Bertelli

Item 2(b). Address of Principal Business Office or, if None, Residence:

Mercury Computer Systems, Inc.
199 Riverneck Road
Chelmsford, MA 01824

Item 2(c). Citizenship:

United States

Item 2(d). Title of Class of Securities:

Common Stock, par value \$0.01 per share

Item 2(e). CUSIP Number:

589378108

Item 3. If this statement is filed pursuant to Rule 13d-1(b) or Rule 13d-2(b) or (c), check whether the person filing is a:

- (a) Broker or dealer registered under Section 15 of the Exchange Act.
- (b) Bank as defined in Section 3(a)(6) of the Exchange Act.
- (c) Insurance company as defined in Section 3(a)(19) of the Exchange Act.
- (d) Investment company registered under Section 8 of the Investment Company Act.
- (e) An investment adviser in accordance with Rule 13d-1(b)(1)(ii)(E);
- (f) An employee benefit plan or endowment fund in accordance with Rule 13d-1(b)(1)(ii)(F);

- (g) A parent holding company or control person in accordance with Rule 13d-1(b)(1)(ii)(G);
- (h) A savings association as defined in Section 3(b) of the Federal Deposit Insurance Act;
- (i) A church plan that is excluded from the definition of an investment company under Section 3(c)(14) of the Investment Company Act;
- (j) Group, in accordance with Rule 13d-1(b)(1)(ii)(J).

Not applicable.

Item 4. Ownership.

- (a) Amount beneficially owned: 1,090,053 shares of Common Stock, including 799,427 shares directly, 6,526 shares through restricted stock grants, and 284,100 shares through presently exercisable options, and excluding 12,400 shares held by Mr. Bertelli's spouse as to which Mr. Bertelli disclaims beneficial ownership.
- (b) Percent of class: 5.1%
- (c) Number of shares as to which such person has:
 - (i) Sole power to vote or to direct the vote: 1,090,053
 - (ii) Shared power to vote or to direct the vote: 0
 - (iii) Sole power to dispose or to direct the disposition of: 1,083,527 *
 - (iv) Shared power to dispose or to direct the disposition of: 0

* Excludes 6,526 shares of restricted stock, as to which shares Mr. Bertelli has no dispositive power.

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

Not applicable.

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

Not applicable.

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

Not applicable.

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

Not applicable.

Item 9. Notice of Dissolution of Group.

Not applicable.

Item 10. Certification.

Not applicable.

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.

February 10, 2006

Date

/s/ James R. Bertelli

James R. Bertelli