UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

WASHINGTON, DC 20549

FORM 8-K

CURRENT REPORT

PURSUANT TO SECTION 13 OR 15(d) OF THE

SECURITIES EXCHANGE ACT OF 1934

Date of report (Date of earliest event reported): December 14, 2007

Mercury Computer Systems, Inc.

(Exact Name of Registrant as Specified in Charter)

Massachusetts (State or Other Jurisdiction 000-23599 (Commission File Number) 04-2741391 (IRS Employer

of Incorporation)

Identification No.)

199 Riverneck Road, Chelmsford, Massachusetts (Address of Principal Executive Offices)

01824 (Zip Code)

Registrant s telephone number, including area code: (978) 256-1300

Not Applicable

(Former Name or Former Address, if Changed Since Last Report)

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Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions (*see* General Instruction A.2. below):

- " Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
- " Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
- " Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
- " Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Item 5.02 Departure of Directors or Certain Officers; Election of Directors; Appointment of Certain Officers; Compensatory Arrangements of Certain Officers

On December 14, 2007, Mercury Computer Systems, Inc. (the Company) entered into a Second Amendment (the Second Amendment) to the Employment Agreement, dated March 8, 2007 and amended September 26, 2007 (the Employment Agreement), with Robert E. Hult, Senior Vice President, Chief Financial Officer and Treasurer of the Company. In connection with entering into the Second Amendment, Mr. Hult agreed to postpone his previously-announced retirement, which had been scheduled for February 1, 2008, and to instead remain an employee of the Company.

The Second Amendment extends the term of the Employment Agreement to December 14, 2009. The Second Amendment also eliminates the retention bonuses that were potentially payable to Mr. Hult on September 15, 2008 and September 15, 2009; extends the notice period for the termination by Mr. Hult of his employment to 180 days; and provides for the payment of cash consulting fees and the continued vesting of certain restricted stock awards in accordance with their original vesting schedules so long as Mr. Hult continues to be available to provide consulting services to the Company through December 14, 2009. Except to the extent expressly amended by the Second Amendment, the terms of Mr. Hult s Employment Agreement remain in full force and effect.

The foregoing summary is qualified in its entirety by reference to the Second Amendment, a copy of which is filed as Exhibit 10.1 to this Current Report on Form 8-K and is incorporated herein by reference, and to Mr. Hult soriginal Employment Agreement (a copy of which was filed as Exhibit 10.1 to the Company so Current Report on Form 8-K filed with the Securities and Exchange Commission on March 13, 2007) and the First Amendment to the Employment Agreement (a copy of which was filed as Exhibit 10.2 to the Company so Current Report on Form 8-K filed with the SEC on September 28, 2007), both of which are also incorporated herein by reference.

Also in connection with the postponement of his retirement, Mr. Hult s annual base salary was increased to \$290,000. and he was granted an option to purchase 25,000 shares of the Company s common stock with an exercise price of \$15.10 per share, which was the closing price of the Company s common stock on December 14, 2007, the date of grant.

Item 5.03 Amendments to Articles of Incorporation or Bylaws; Change in Fiscal Year

On December 17, 2007, the Board of Directors of the Company approved amendments to Sections 8.3 and 8.5 of the Company s By-Laws to allow for the issuance and transfer of uncertificated shares of the Company, which amendments were effective immediately. The purpose of these amendments was to ensure that the Company would be eligible to participate in a Direct Registration Program, as required by NASDAQ Rule 4350. The full text of the amendments is attached hereto as Exhibit 3.1 and is incorporated herein by reference.

Item 9.01 Financial Statements and Exhibits

(d) Exhibits

Exhibit No. 3.1	Description Amendment to By-Laws of Mercury Computer Systems, Inc. dated December 17, 2007
10.1	Second Amendment to Employment Agreement, dated as of December 14, 2007, by and between Mercury Computer Systems, Inc. and Robert E. Hult

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

Dated: December 19, 2007 MERCURY COMPUTER SYSTEMS, INC.

By: /s/ Mark Aslett
Mark Aslett
President and Chief Executive Officer

EXHIBIT INDEX

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