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**UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
WASHINGTON, DC 20549**

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**FORM 8-K**

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**CURRENT REPORT**

**PURSUANT TO SECTION 13 OR 15(d) OF THE  
SECURITIES EXCHANGE ACT OF 1934**

**Date of report (Date of earliest event reported): October 21, 2009**

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**Mercury Computer Systems, Inc.**

(Exact Name of Registrant as Specified in Charter)

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**Massachusetts**  
(State or Other Jurisdiction  
of Incorporation)

**000-23599**  
(Commission  
File Number)

**04-2741391**  
(IRS Employer  
Identification No.)

**201 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))
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**Item 5.02 Departure of Directors or Certain Officers; Election of Directors; Appointment of Certain Officers; Compensatory Arrangements of Certain Officers**

At the Annual Meeting of Shareholders held on October 21, 2009 (the "Annual Meeting"), the shareholders of Mercury Computer Systems, Inc. (the "Company") approved an amendment and restatement of the Company's 2005 Stock Incentive Plan (the "2005 Plan"), an amendment and restatement of the Company's 1997 Employee Stock Purchase Plan (the "ESPP"), and a new Annual Executive Bonus Plan – Corporate Financial Performance (the "CFP Bonus Plan").

**2005 Stock Incentive Plan**

The amended and restated 2005 Plan contains the following changes:

- the aggregate number of shares authorized for issuance is increased by 1,500,000 shares; and
- language has been added to clarify that non-employee directors can receive restricted stock awards with time-based vesting of less than three years and that, upon a change in control, all outstanding awards held by non-employee directors will automatically become fully vested.

A summary of the material terms and conditions of the amended and restated 2005 Plan is set forth in the Company's Definitive Proxy Statement dated September 21, 2009 (the "Proxy Statement"), under the caption "Proposal 2: Approval of Amendment and Restatement of Mercury Computer Systems, Inc. 2005 Stock Incentive Plan – Summary of the Amended and Restated 2005 Plan." Such description is incorporated herein by reference and is qualified in its entirety by reference to the full text of the amended and restated 2005 Plan, which is filed as Exhibit 10.1 to this Current Report on Form 8-K.

**1997 Employee Stock Purchase Plan**

The amended and restated ESPP increased the aggregate number of shares authorized for issuance by 300,000 shares. A summary of the material terms and conditions of the amended and restated ESPP is set forth in the Proxy Statement under the caption "Proposal 3: Approval of Amendment and Restatement of Mercury Computer Systems, Inc. 1997 Employee Stock Purchase Plan – Summary of the ESPP." Such description is incorporated herein by reference and is qualified in its entirety by reference to the full text of the amended and restated ESPP, which is filed as Exhibit 10.2 to this Current Report on Form 8-K.

**Annual Executive Bonus Plan – Corporate Financial Performance**

The CFP Bonus Plan is a new variable cash incentive program intended to permit the payment of bonuses that qualify as performance-based compensation under Section 162(m) of the Internal Revenue Code. A summary of the material terms and conditions of the CFP Bonus Plan is set forth in the Proxy Statement under the caption "Proposal 4: Approval of Mercury Computer Systems, Inc. Annual Executive Bonus Plan – Corporate Financial Performance." Such description is incorporated herein by reference and is qualified in its entirety by reference to the full text of the CFP Bonus Plan, which is filed as Exhibit 10.3 to this Current Report on Form 8-K.

**Item 8.01 Other Events****Board of Directors**

At the Annual Meeting, Russell K. Johnsen and Vincent Vitto were elected as Class III Directors of the Company. Immediately following the Annual Meeting, the Company's Board of Directors held a meeting at which it elected Russell K. Johnsen as Chairman of the Board and determined the composition of the Board committees for the upcoming year. The three standing committees of the Board will be constituted as follows:

Audit Committee: Lee C. Steele (Chairman), Albert P. Belle Isle, and William K. O'Brien.

Compensation Committee: George W. Chamillard (Chairman), Vincent Vitto, and Richard P. Wishner.

Nominating and Governance Committee: William K. O'Brien (Chairman), Albert P. Belle Isle, Lee C. Steele, and Vincent Vitto.

In addition, the Board adopted a new compensation policy for non-employee directors. The new policy provides that non-employee directors may receive annual equity awards consisting of a stock option award for 8,000 shares and a restricted stock award for 5,333 shares. The stock option and restricted stock awards vest as to 50% of the shares covered by the awards on the date of grant and as to the remaining covered shares on the first anniversary of the date of grant. The stock options expire seven years after the date of grant. Cash compensation for non-employee directors remains unchanged from the prior policy.

#### **Independent Registered Public Accounting Firm**

At the Annual Meeting, the Company's shareholders ratified the appointment of KPMG LLP as the Company's independent registered public accounting firm for fiscal year 2010.

#### **Item 9.01 Financial Statements and Exhibits.**

(d) Exhibits

<u>Exhibit No.</u>	<u>Description</u>
10.1	Mercury Computer Systems, Inc. Amended and Restated 2005 Stock Incentive Plan (incorporated herein by reference to Appendix A to Mercury Computer Systems, Inc.'s Definitive Proxy Statement filed with the Securities and Exchange Commission on September 21, 2009)
10.2	Mercury Computer Systems, Inc. Amended and Restated 1997 Employee Stock Purchase Plan (incorporated herein by reference to Appendix B to Mercury Computer Systems, Inc.'s Definitive Proxy Statement filed with the Securities and Exchange Commission on September 21, 2009)
10.3	Mercury Computer Systems, Inc. Annual Executive Bonus Plan – Corporate Financial Performance (incorporated herein by reference to Appendix C to Mercury Computer Systems, Inc.'s Definitive Proxy Statement filed with the Securities and Exchange Commission on September 21, 2009)

**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: October 26, 2009

MERCURY COMPUTER SYSTEMS, INC.

By:   /S/ ALEX A. VAN ADZIN    
  Alex A. Van Adzin  
  Vice President, General Counsel, and Corporation Secretary

## EXHIBIT INDEX

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