
**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): July 28, 2009

Mercury Computer Systems, Inc.

(Exact Name of Registrant as Specified in Charter)

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)

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

On July 28, 2009, the Compensation Committee of the Board of Directors of Mercury Computer Systems, Inc. (the “Committee”) approved two new plan documents for our fiscal year 2010 annual executive bonus program. The Annual Executive Bonus Plan – Corporate Financial Performance (the “Corporate Performance Plan”), subject to stockholder approval at our 2009 Annual Meeting of Stockholders, is a 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 of 1986, as amended (the “Code”). The Annual Executive Bonus Plan – Individual Performance (the “Individual Performance Plan”) is a variable cash incentive program designed to motivate participants to achieve individual management-by-results performance objectives. Mark Aslett, President and Chief Executive Officer, Robert E. Hult, Senior Vice President, Chief Financial Officer, and Treasurer, Didier M.C. Thibaud, Senior Vice President and General Manager, Advanced Computing Solutions, and other executive officers are eligible to participate in the plans.

Description of the Corporate Performance Plan

Participation. The Committee reviews and approves the CEO’s selection of employees of Mercury and its subsidiaries who will be eligible to receive bonuses and over-achievement awards under the plan.

Target Bonuses, Target Over-Achievement Awards, and Performance Goals. Each fiscal year, the Committee reviews and approves the CEO’s assignment to each participant of a target bonus, a target over-achievement award, and a performance goal or goals. A participant’s target bonus is expressed as a percentage of his or her base salary.

A participant’s target over-achievement award is expressed as a percentage of the over-achievement award pool. The Committee establishes a formula for determining the size of the over-achievement award pool based on the amount by which actual operating income for the fiscal year exceeds budgeted operating income for such fiscal year. Each over-achievement award is subject to a cap of 100% of (a) the participant’s target bonus under the Corporate Performance Plan plus (b) the participant’s target bonus under the Individual Performance Plan.

The performance goals require the achievement of objectives based upon one or more of the following: (a) cash position; (b) controllable profits; (c) days sales outstanding; (d) earnings per share; (e) adjusted EBITDA; (f) free cash flow; (g) inventory reduction; (h) net income; (i) new orders; (j) operating cash flow; (k) operating income; (l) return on assets; (m) return on equity; (n) return on sales; (o) revenue; and (p) total shareholder return. Each of these measures is defined in the plan. Performance goals may differ from participant to participant, from fiscal year to fiscal year, and from award to award.

Actual Bonuses. After the fiscal year ends, the Committee certifies in writing the extent to which the pre-established performance goals were achieved. The actual bonus that is payable to a participant is determined using a formula determined by the Committee. The Committee has discretion to reduce or eliminate any actual bonus. Actual bonuses are paid in cash no later than 75 days after the fiscal year ends.

Actual Over-Achievement Awards. After the fiscal year ends, the Committee certifies in writing the extent to which actual operating income exceeded budgeted operating income for the fiscal year and determines the size of the over-achievement award pool. The actual over-achievement award that is payable to a participant is determined using a formula determined by the Committee. The Committee has discretion to reduce or eliminate any actual over-achievement award. A portion (to be determined by the Committee at the beginning of the fiscal year) of an actual over-achievement award is paid in cash no later than 75 days after the fiscal year ends, and the remaining portion is banked and paid out in three equal installments over a three-year period.

Maximum Payment. The plan limits the actual payment to any participant with respect to any fiscal year to \$2,000,000.

Administration. The Committee administers the plan. Members of the Committee must qualify as outside directors under Section 162(m) of the Code.

Amendment and Termination. The Board of Directors and the Committee may amend or terminate the plan at any time and for any reason. However, no amendment or termination of the plan may impair the rights of a participant with respect to previously established target bonuses and over-achievement awards, unless the participant consents.

Description of the Individual Performance Plan

Participation. The Committee reviews and approves the CEO's selection of employees of Mercury and its subsidiaries who will be eligible to receive bonuses under the plan.

Target Bonuses and Performance Goals. In each fiscal year, the Committee reviews and approves the CEO's assignment to each participant of a target bonus and a performance goal or goals. A participant's bonus is expressed as a percentage of his or her base salary.

The performance goals require the achievement of individual management-by-results performance objectives. Performance goals may differ from participant to participant and from fiscal year to fiscal year.

Actual Bonuses. After the fiscal year ends, the Committee certifies in writing the extent to which the pre-established performance goals were achieved. The actual bonus that is payable to a participant is determined using a formula determined by the Committee. Actual bonuses are paid in cash no later than 75 days after the fiscal year ends.

Administration. The Committee administers the plan. Members of the Committee must qualify as outside directors under Section 162(m) of the Code.

Amendment and Termination. The Board of Directors and the Committee may amend or terminate the plan at any time and for any reason. However, no amendment or termination of the plan may impair the rights of a participant with respect to previously established target bonuses, unless the participant consents.

Filing of the Plans as Exhibits

We intend to file copies of the plan documents described herein as exhibits to our annual report on Form 10-K for the fiscal year ended June 30, 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: August 3, 2009

MERCURY COMPUTER SYSTEMS, INC.

By: /s/ Alex A. Van Adzin
Alex A. Van Adzin
Vice President, General Counsel,
and Corporation Secretary