

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 27, 2007

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.)

199 Riverneck Road, Chelmsford, Massachusetts

(Address of Principal Executive Offices)

01824

(Zip Code)

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

N/A

(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))

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

(a) – (d) Not applicable.

(e) On July 27, 2007, Mercury Computer Systems, Inc. (the “Company”) paid Marcelo G. Lima, Vice President and General Manager, Commercial Imaging and Visualization and a “named executive officer” (as such term is used in Item 402(a)(3) of Regulation S-K), a cash bonus in the amount of \$3,613 under the Company’s annual executive bonus program for fiscal year 2007. As part of the 2007 annual executive bonus program, Mr. Lima receives a quarterly bonus determined as a percentage of the revenues of the CIV business unit, and the foregoing payment represents the amount earned by Mr. Lima with respect to CIV’s revenues for the fourth fiscal quarter.

(f) Not applicable.

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 hereunto duly authorized.

MERCURY COMPUTER SYSTEMS, INC.
(Registrant)

Date: August 2, 2007

By: _____ /s/ JAMES R. BERTELLI

James R. Bertelli
President and Chief Executive Officer