

**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) August 31, 2005

Mercury Computer Systems, Inc.

(Exact Name of Registrant as Specified in Its 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))
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Item 2.01 Completion of Acquisition or Disposition of Assets

On August 31, 2005, Mercury Computer Systems, Inc. (“Mercury”) completed its acquisition of Echotek Corporation (“Echotek”) for approximately \$49.0 million in cash and stock, subject to certain post-closing adjustments. The transaction was structured as the merger of an acquisition subsidiary of Mercury with and into Echotek. As a result, Echotek became a wholly-owned subsidiary of Mercury. Echotek, which is based in Huntsville, Alabama, develops and sells data acquisition products.

The purchase price was paid by Mercury in a combination of cash and shares of its common stock. The stock portion of the consideration consisted of 177,132 shares of Mercury common stock valued at approximately \$4.7 million, based on the average price of Mercury’s common stock during a twenty-day trading period prior to the closing. The shares issued in the transaction represented less than 1% of Mercury’s outstanding shares of common stock as of the closing date.

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.

MERCURY COMPUTER SYSTEMS, INC.

Dated: September 6, 2005

By: /s/ Joseph M. Hartnett

Joseph M. Hartnett
Vice President, Controller and
Chief Accounting Officer