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**UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
WASHINGTON, D.C. 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): April 23, 2004**

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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.)

**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)

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**ITEM 5. OTHER EVENTS**

On April 23, 2004, Mercury Computer Systems, Inc. (the "Company") announced that the initial purchasers in its recently announced private offering, pursuant to Rule 144A, of \$100 million principal amount of 2.00% convertible senior notes due 2024, have exercised their over-allotment option to purchase an additional \$25 million aggregate principal amount of such notes. The sale of the notes is expected to close on April 29, 2004. The Company's press release is attached hereto and incorporated herein by reference.

**ITEM 7. EXHIBITS**

(c) Exhibits. The following exhibit is filed with this Current Report on Form 8-K.

<u>Exhibit No.</u>	<u>Description</u>
99.1	Press release, dated April 23, 2004, issued by Mercury Computer Systems, Inc.

**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: April 23, 2004

By:           /s/ JOSEPH M. HARTNETT          

**Name: Joseph M. Hartnett**

**Title: Vice President, Controller and Chief Accounting Officer**

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**EXHIBIT INDEX**

<u>Exhibit No.</u>	<u>Description</u>
99.1	Press Release, dated April 23, 2004, of Mercury Computer Systems, Inc.

**Mercury Computer Systems, Inc. Announces Exercise of Over-Allotment Option**

**CHELMSFORD, Mass**, April 23, 2004 – Mercury Computer Systems, Inc. (NASDAQ: MRCY) announced today that the initial purchasers in its recently announced private offering, pursuant to Rule 144A, of \$100 million principal amount of 2.00% convertible senior notes due 2024, have exercised their over-allotment option to purchase an additional \$25 million aggregate principal amount of such notes. The sale of the notes is expected to close on April 29, 2004.

The notes will be offered only to qualified institutional buyers, as defined in Rule 144A under the Securities Act of 1933, as amended (the “Securities Act”). The notes will not be registered under the Securities Act or any state securities laws, and may not be offered or sold in the United States absent registration or an applicable exemption from the registration requirements of the Securities Act and applicable state securities laws.

This press release does not and will not constitute an offer to sell or the solicitation of an offer to buy the notes.

**Forward-Looking Safe Harbor Statement**

This press release contains certain forward-looking statements, as that term is defined in the Private Securities Litigation Reform Act of 1995. You should exercise caution in interpreting and relying on forward-looking statements because they involve known and unknown risks, uncertainties and other factors which are, in some cases, beyond Mercury’s control, and could cause actual results to differ materially from those projected or anticipated. Such risks and uncertainties include, but are not limited to, Mercury’s ability to complete the offering of convertible senior notes on the anticipated timetable, market conditions, and other risks and uncertainties detailed from time to time in Mercury’s filings with the Securities and Exchange Commission.

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**Contacts:**

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