UNITED STATES SECU

	CIVILLO STATES	
SECURI	TIES AND EXCHANGE COMMIS	SSION
	WASHINGTON, D.C. 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): April 29, 2004	
MERCU	URY COMPUTER SYSTEMS	, INC.
ssachusetts	000-23599	04-2741391

Massachusetts (State or Other Jurisdiction

(Commission File Number)

(IRS Employer

of Incorporation)

Identification No.)

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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)

ITEM 5. OTHER EVENTS AND REQUIRED FD DISCLOSURE

On April 29, 2004, Mercury Computer Systems, Inc. (the Company) completed a private offering of \$125 million aggregate principal amount of 2% Convertible Senior Notes due May 1, 2024. The notes were offered only to qualified institutional buyers, as defined in Rule 144A under the Securities Act of 1933, as amended (the Securities Act). The notes have not been 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.

In connection with the completion of the offering, the Company is filing certain exhibits as part of this Current Report on Form 8-K. See Item 7. Financial Statements, Pro Forma Financial Information and Exhibits.

ITEM 7. FINANCIAL STATEMENTS, PRO FORMA FINANCIAL INFORMATION AND EXHIBITS

(c) Exhibits. The following exhibits are filed with this Current Report on Form 8-K:

Exhibit No.	Description
4.1	Indenture, dated April 29, 2004, between Mercury Computer Systems, Inc., as Issuer, and U.S. Bank National Association, as Trustee
4.2	Form of 2% Convertible Senior Note due 2024
	(included as part of Exhibit 4.1)
4.3	Registration Rights Agreement, dated April 29, 2004, between Mercury Computer Systems, Inc. and the Initial Purchasers named therein

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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: May 11, 2004

MERCURY COMPUTER SYSTEMS, INC.

By: /s/ Joseph M. Hartnett

Joseph M. Hartnett Vice President, Controller and

Chief Accounting Officer

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EXHIBIT INDEX

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