

SECURITIES AND EXCHANGE COMMISSION

WASHINGTON, D.C. 20549

FORM 10-K/A
AMENDMENT NO. 1

(MARK ONE)

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

FOR THE FISCAL YEAR ENDED JUNE 30, 2004

OR

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

COMMISSION FILE NUMBER - 000-23599

MERCURY COMPUTER SYSTEMS, INC.

(Exact name of registrant as specified in its charter)

MASSACHUSETTS
(State or other jurisdiction of
incorporation or organization)

04-2741391
(I.R.S. Employer
Identification No.)

199 RIVERNECK ROAD, CHELMSFORD
MASSACHUSETTS
(Address of principal executive offices)

01824
(Zip code)

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

**SECURITIES REGISTERED PURSUANT TO SECTION 12(b) OF THE
SECURITIES EXCHANGE ACT OF 1934:**
None

**SECURITIES REGISTERED PURSUANT TO SECTION 12(g) OF THE
SECURITIES EXCHANGE ACT OF 1934:**
Common Stock, Par Value \$.01 Per Share

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes No

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K.

Indicate by check mark whether the registrant is an accelerated filer (as defined in Exchange Act Rule 12b-2). Yes No

The aggregate market value of the registrant's voting stock held by non-affiliates of the registrant as of June 30, 2004 was \$527,963,604 based upon the closing price of the registrant's Common Stock on the NASDAQ National Market on that date.

Shares of Common Stock outstanding as of August 31, 2004: 21,014,045 shares

EXPLANATORY NOTE

Mercury Computer Systems, Inc. (the "Company") is filing this Amendment No. 1 on Form 10-K/A ("Amendment No. 1") solely to amend its disclosures in Item 9A of Part II of its Annual Report on Form 10-K for the fiscal year ended June 30, 2004 (the "Form 10-K"), which was originally filed with the Securities and Exchange Commission (the "SEC") on September 10, 2004. The purpose of this Amendment No. 1 is to address comments that the Company received from the Staff of the Division of Corporation Finance of the SEC in connection with the filing of the Form 10-K. Pursuant to Rule 12b-15 under the Securities and Exchange Act of 1934, as amended, this Amendment No. 1 contains the complete text of Item 9A of Part II, as amended, and a new Exhibit Index. Unaffected items have not been repeated in this Amendment No. 1. This Amendment No. 1 speaks as of the date of the original filing of the Form 10-K and has not been updated to reflect events occurring subsequent to the original filing date.

PART II

ITEM 9A. CONTROLS AND PROCEDURES

The Company conducted an evaluation under the supervision and with the participation of the Company's management, including the Company's Chief Executive Officer and Chief Financial Officer (its principal executive officer and principal financial officer, respectively), regarding the effectiveness of the Company's disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act) as of the end of the period covered by this report. Based on such evaluation, the Chief Executive Officer and Chief Financial Officer concluded that the Company's disclosure controls and procedures were effective as of that date. There was no change in the Company's internal control over financial reporting that occurred during the quarter ended June 30, 2004 that has materially affected, or is reasonably likely to materially affect, the Company's internal control over financial reporting.

SIGNATURE

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this Amendment No. 1 to its Annual Report on Form 10-K to be signed on its behalf by the undersigned, thereunto duly authorized, in Chelmsford, Massachusetts, on April 19, 2005.

MERCURY COMPUTER SYSTEMS, INC.

By: _____ /s/ Robert E. Hult

Robert E. Hult
Senior Vice President and
Chief Financial Officer

EXHIBIT INDEX

<u>ITEM NO.</u>	<u>DESCRIPTION OF EXHIBIT</u>
3.1	Articles of Organization, as amended (incorporated herein by reference to Exhibit 3.1 of Amendment No. 1 to the Company's annual report on Form 10-K/A for the fiscal year ended June 30, 2002)
3.2	Bylaws, as amended (incorporated herein by reference to Exhibit 3.2 of Amendment No. 1 to the Company's annual report on Form 10-K/A for the fiscal year ended June 30, 2002)
4.1	Form of Stock Certificate (incorporated herein by reference to Exhibit 4.1 of the Company's Registration Statement on Form S-1 (File No. 333-41139))
4.2	Indenture, dated April 29, 2004, between the Company, as Issuer, and U.S. Bank National Association, as Trustee (incorporated herein by reference to Exhibit 4.1 of the Company's current report on Form 8-K as filed with the SEC on May 11, 2004 (File No. 000-23599))
4.3	Form of 2% Convertible Senior Note due 2024 (included as part of Exhibit 4.2)
4.4	Registration Rights Agreement, dated April 29, 2004, between the Company and the Initial Purchasers named therein (incorporated herein by reference to Exhibit 4.3 of the Company's current report on Form 8-K as filed with the SEC on May 11, 2004 (File No. 000-23599))
10.1	1982 Stock Option Plan, as amended (incorporated herein by reference to Exhibit 10.1 of the Company's Registration Statement on Form S-1 (File No. 333-41139))
10.2	1991 Stock Option Plan, as amended (incorporated herein by reference to Exhibit 10.2 of the Company's Registration Statement on Form S-1 (File No. 333-41139))
10.3	1993 Stock Option Plan for Non-Employee Directors (incorporated herein by reference to Exhibit 10.3 of the Company's Registration Statement on Form S-1 (File No. 333-41139))
10.4	1997 Stock Option Plan, as amended and restated (incorporated herein by reference to Exhibit 10.2 of the Company's quarterly report on Form 10-Q for the quarter ended December 31, 2003)
10.5	1998 Stock Option Plan (incorporated herein by reference to Exhibit 10.1 of the Company's annual report on Form 10-K for the fiscal year ended June 30, 1999)
10.6	1997 Employee Stock Purchase Plan (incorporated herein by reference to Exhibit 10.5 of the Company's Registration Statement on Form S-1 (File No. 333-41139))
10.7	Purchase and Sale Agreement, dated November 8, 1996, between Corcoran Chelmsford & Associates and Northland Development Corporation (incorporated herein by reference to Exhibit 10.7 of the Company's Registration Statement on Form S-1 (File No. 333-41139))
10.8#	Term Purchase Agreement, dated July 25, 1995, between the Company and Analog Devices, Inc. (incorporated herein by reference to Exhibit 10.8 of the Company's Registration Statement on Form S-1 (File No. 333-41139))
10.9#	Risk Reproduction Agreement, dated March 20, 1996, between the Company and LSI Logic Corporation (incorporated herein by reference to Exhibit 10.9 of the Company's Registration Statement on Form S-1 (File No. 333-41139))
10.10#	Purchase Offer Agreement for OEM Manufacturer, dated February 16, 1995, between the Company & IBM Microelectronics Division (incorporated herein by reference to Exhibit 10.10 of the Company's Registration Statement on Form S-1 (File No. 333-41139))
10.11	Quitclaim Deed, dated October 1, 1997, executed by Corcoran Chelmsford & Associates Limited Partnership (incorporated herein by reference to Exhibit 10.15 of the Company's Registration Statement on Form S-1 (File No. 333-41139))
10.12	Purchase and Sale Agreement for 199 Riverneck Road, Chelmsford, Massachusetts (incorporated herein by reference to Exhibit 10.1 of the Company's quarterly report on Form 10-Q for the quarter ended December 31, 1998)
10.13	Quitclaim Deed for 199 Riverneck Road, Chelmsford, Massachusetts (incorporated herein by reference to Exhibit 10.2 of the Company's quarterly report on Form 10-Q for the quarter ended December 31, 1998)
10.14	199 Riverneck LLC \$6,850,000 7.30% Note Purchase Agreement (incorporated herein by reference to Exhibit 10.1 of the Company's quarterly report on Form 10-Q for the quarter ended September 30, 1999)
10.15	201 Riverneck LLC \$7,650,000 7.30% Note Purchase Agreement (incorporated herein by reference to Exhibit 10.2 of the Company's quarterly report on Form 10-Q for the quarter ended September 30, 1999)

10.16	Deferred Compensation Plan (incorporated herein by reference to Exhibit 10.16 of the Company's annual report on Form 10-K for the fiscal year ended June 30, 2003)
10.17	Form of Indemnification Agreement between the Company and each of its current directors (incorporated herein by reference to Exhibit 10.1 of the Company's quarterly report on Form 10-Q for the quarter ended December 31, 2003)
12.1*	Ratio of Earnings to Fixed Charges
21.1*	Subsidiaries of the Company
23.1*	Consent of PricewaterhouseCoopers LLP
31.1	Certification of the Company's Chief Executive Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
31.2	Certification of the Company's Chief Financial Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
32.1**	Certification of the Company's Chief Executive Officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
32.2**	Certification of the Company's Chief Financial Officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002

* Previously filed with the Annual Report on Form 10-K for the fiscal year ended June 30, 2004.

** Previously furnished with the Annual Report on Form 10-K for the fiscal year ended June 30, 2004.

Confidential treatment granted.

CERTIFICATION

I, James R. Bertelli, President and Chief Executive Officer of Mercury Computer Systems, Inc., certify that:

1. I have reviewed this annual report on Form 10-K/A of Mercury Computer Systems, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. [Intentionally Omitted]
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) for the registrant and have:
 - a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - c) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: April 19, 2005

/s/ James R. Bertelli

James R. Bertelli
PRESIDENT AND CHIEF EXECUTIVE OFFICER
[PRINCIPAL EXECUTIVE OFFICER]

CERTIFICATION

I, Robert E. Hult, Senior Vice President and Chief Financial Officer of Mercury Computer Systems, Inc., certify that:

1. I have reviewed this annual report on Form 10-K/A of Mercury Computer Systems, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. [Intentionally Omitted]
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) for the registrant and have:
 - a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - c) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: April 19, 2005

/s/ Robert E. Hult

Robert E. Hult
SENIOR VICE PRESIDENT AND
CHIEF FINANCIAL OFFICER
[PRINCIPAL FINANCIAL OFFICER]