

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**

Washington, DC 20549

**SCHEDULE TO
(Rule 13e-4)**

**TENDER OFFER STATEMENT UNDER SECTION 14(d)(1) OR 13(e)(1)
OF THE SECURITIES EXCHANGE ACT OF 1934**

MERCURY COMPUTER SYSTEMS, INC.

(Name of Subject Company (Issuer) and Filing Person (Offeror))

**Options to Purchase Common Stock, Par Value \$.01 Per Share,
of Mercury Computer Systems, Inc.**

(Title of Class of Securities)

589378 10 8

(CUSIP Number of Class of Securities (Underlying Common Stock))

**Craig Barrows, Esq.
Vice President and General Counsel
Mercury Computer Systems, Inc.
199 Riverneck Road
Chelmsford, Massachusetts 01824
(978) 256-1300**

(Name, Address and Telephone Number of Person Authorized to Receive Notices and
Communications on Behalf of Filing Person)

Copies of all communications should be sent to:

**Anthony J. Medaglia, Jr., P.C.
Goodwin Procter LLP
Exchange Place
Boston, Massachusetts 02109
(617) 570-1000**

CALCULATION OF FILING FEE

Transaction Value	Amount of Filing Fee
Not Applicable*	Not Applicable*

- * A filing fee is not required in connection with this filing as it relates solely to preliminary communications made before the commencement of a tender offer.
- o Check the box if any part of the fee is offset as provided in Rule 0-11(a)(2) and identify the filing with which the offsetting fee was previously paid. Identify the previous filing by registration statement number, or the Form or Schedule and the date of its filing.

Amount Previously Paid: Not applicable
Form or Registration No.: Not applicable

Filing Party: Not applicable
Date Filed: Not applicable

- x Check the appropriate box if the filing relates solely to preliminary communications made before the commencement of a tender offer.

Check the appropriate boxes below to designate any transactions to which the statement relates:

- o third party tender offer subject to Rule 14d-1.
- x issuer tender offer subject to Rule 13e-4.
- o going private transaction subject to Rule 13e-3.
- o amendment to Schedule 13D under Rule 13d-2.

Check the following box if the filing is a final amendment reporting the results of the tender offer: o

This Tender Offer Statement on Schedule TO is being filed by Mercury Computer Systems, Inc. ("Mercury") pursuant to General Instruction D to Schedule TO.

EXHIBIT INDEX

Exhibit No.	Description
99.1	Email from James R. Bertelli, President and Chief Executive Officer of the Company, transmitted on July 26, 2006 to certain employees of the Company regarding the special meeting of shareholders to be held on August 7, 2006.

Date: July 26, 2006
From: Jay Bertelli
Subject: Shareholder Meeting

As you know, our Board of Directors has called a special meeting of shareholders that will be held on August 7, 2006. Shareholders are being asked to approve a proposed exchange of outstanding stock options having exercise prices greater than \$23 per share for a lesser number of shares of restricted stock in accordance with a 4-to-1 exchange ratio and a related amendment to our 2005 Stock Incentive Plan to allow this exchange. Members of our Board of Directors and our five most highly compensated executive officers (including myself) will not be eligible to participate in the exchange program.

We believe that the exchange program, if approved by shareholders, will provide us with an opportunity to restore for eligible associates an incentive to remain with us and contribute to the future growth and success of our business, while at the same time reducing the significant equity award "overhang" represented by outstanding options that have high exercise prices and are no longer effective as performance and retention incentives.

Our Board of Directors believes the proposed exchange program is favorable to the interests of our shareholders and has unanimously recommended a vote "FOR" approval of the exchange program and related amendment to the 2005 Plan.

We have not commenced the exchange program and will not do so unless our shareholders approve the proposal. Your vote is important. If you have not already voted, you are encouraged to complete and return the proxy card that was mailed to you with the proxy materials relating to the special meeting of shareholders. If you did not receive the proxy materials, or need another copy, please contact Maria Sirigos for assistance.

If you are both a shareholder and an eligible associate holding eligible options, please note that voting to approve the exchange program and related amendment to the 2005 Plan does not constitute an election to participate in the exchange program.

Additional Information and Where to Find It

We have not commenced the exchange program referred to above. If the exchange program is approved by shareholders, we will provide eligible associates with written materials explaining the full terms and conditions of the program, and will also file these materials with the Securities and Exchange Commission. **WHEN THESE MATERIALS BECOME AVAILABLE, EMPLOYEES ELIGIBLE FOR THE EXCHANGE PROGRAM SHOULD READ THEM CAREFULLY, AS WELL AS ANY AMENDMENTS OR SUPPLEMENTS TO THOSE DOCUMENTS, BECAUSE THEY WILL CONTAIN IMPORTANT INFORMATION ABOUT THE PROPOSED OPTION EXCHANGE PROGRAM.**

Once the materials are filed with the Securities and Exchange Commission, they will be available free of charge at www.sec.gov and on our website at www.mc.com and by contacting the Investor Relations department at 199 Riverneck Road, Chelmsford, MA 01824, telephone (978) 256-1300.
