

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

SCHEDULE 14A

Proxy Statement Pursuant to Section 14(a) of
the Securities Exchange Act of 1934 (Amendment No.)

Filed by the Registrant

Filed by a Party other than the Registrant

Check the appropriate box:

Preliminary Proxy Statement

**Confidential, for Use of the Commission Only (as permitted by Rule 14a-6(e)
(2))**

Definitive Proxy Statement

Definitive Additional Materials

Soliciting Material Pursuant to §240.14a-12

Mercury Computer Systems, Inc.

(Name of Registrant as Specified In Its Charter)

(Name of Person(s) Filing Proxy Statement, if other than the Registrant)

Payment of Filing Fee (Check the appropriate box):

No fee required.

Fee computed on table below per Exchange Act Rules 14a-6(i)(1) and 0-11.

(1) Title of each class of securities to which transaction applies:

(2) Aggregate number of securities to which transaction applies:

(3) Per unit price or other underlying value of transaction computed pursuant to Exchange Act Rule 0-11 (set forth the amount on which the filing fee is calculated and state how it was determined):

(4) Proposed maximum aggregate value of transaction:

(5) Total fee paid:

Fee paid previously with preliminary materials.

Check box if any part of the fee is offset as provided by Exchange Act Rule 0-11(a)(2) and identify the filing for which the offsetting fee was paid previously. Identify the previous filing by registration statement number, or the Form or Schedule and the date of its filing.

(1) Amount Previously Paid:

(2) Form, Schedule or Registration Statement No.:

(3) Filing Party:

(4) Date Filed:



July , 2006

Dear Shareholder:

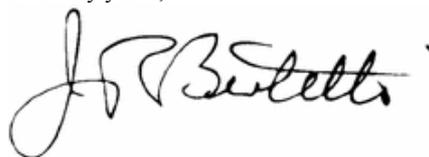
Mercury Computer Systems, Inc. will hold a Special Meeting of Shareholders on August , 2006 beginning at 10:00 a.m., local time, at the offices of Goodwin Procter LLP, 53 State Street, Boston, Massachusetts 02109. We look forward to your attending either in person or by proxy, but please note that due to security procedures you will be required to show a form of picture identification to gain access to the offices of Goodwin Procter LLP if you plan to attend the special meeting. The enclosed notice of meeting, the proxy statement and the proxy card from the Board of Directors describe the proposal to be acted upon at the meeting.

This special meeting has been called for the purpose of asking our shareholders to approve a proposed exchange of outstanding stock options having exercise prices greater than \$23.00 per share for a lesser number of shares of restricted stock and a related amendment to our 2005 Stock Incentive Plan to allow this. The Board of Directors recommends that you vote FOR the approval of the proposed exchange and related amendment.

Please refer to the enclosed proxy statement for detailed information on the proposal. If you have any further questions concerning the meeting or the proposal, please feel free to contact us at (978) 256-1300. Your vote is important. Whether or not you expect to attend the meeting, your shares should be represented. Therefore, we urge you to complete, sign, date and promptly return the enclosed proxy card.

On behalf of the Board of Directors, we would like to express our appreciation for your continued interest in our company.

Sincerely yours,



JAMES R. BERTELLI
President and Chief Executive Officer

MERCURY COMPUTER SYSTEMS, INC.
199 RIVERNECK ROAD
CHELMSFORD, MA 01824
(978) 256-1300

Notice of Special Meeting

To Be Held August , 2006

To Shareholders:

A Special Meeting of Shareholders of MERCURY COMPUTER SYSTEMS, INC. will be held on , August , 2006 at 10:00 a.m., local time, at the offices of Goodwin Procter LLP, 53 State Street, Boston, Massachusetts 02109, in order to approve a proposed exchange of outstanding stock options having exercise prices greater than \$23.00 per share for a lesser number of shares of restricted stock and a related amendment to our 2005 Stock Incentive Plan to allow this.

No other business may properly be brought before the meeting.

The Board of Directors has fixed the close of business on June 19, 2006 as the record date for the meeting. All shareholders of record on that date are entitled to notice of and to vote at the meeting.

YOUR VOTE IS IMPORTANT. PLEASE COMPLETE AND RETURN THE ENCLOSED PROXY IN THE ENVELOPE PROVIDED WHETHER OR NOT YOU INTEND TO BE PRESENT AT THE MEETING IN PERSON. IF YOU ATTEND THE MEETING, YOU MAY CONTINUE TO HAVE YOUR SHARES VOTED AS INSTRUCTED IN THE PROXY OR YOU MAY WITHDRAW YOUR PROXY AND VOTE YOUR SHARES IN PERSON.

By Order of the Board of Directors



ANTHONY J. MEDAGLIA, JR.
Secretary

Chelmsford, Massachusetts
July , 2006

MERCURY COMPUTER SYSTEMS, INC.
199 RIVERNECK ROAD
CHELMSFORD, MA 01824
(978) 256-1300

QUESTIONS AND ANSWERS ABOUT THESE PROXY MATERIALS AND VOTING

Why am I receiving these materials?

We are mailing this proxy statement, with the accompanying proxy card, to you on or about July , 2006 in connection with the solicitation of proxies by the Board of Directors of Mercury Computer Systems, Inc. (the "Company") for a special meeting of shareholders to be held on August , 2006, and any adjournment or postponement of that meeting. The meeting will be held on , August , 2006, beginning at 10:00 a.m., local time, at the offices of Goodwin Procter LLP, 53 State Street, Boston, Massachusetts 02109. You are invited to attend the special meeting, and we request that you vote on the proposal described in this proxy statement. You do not need to attend the meeting in person to vote your shares. You may simply complete, sign and return your proxy card in order to have your shares voted at the meeting on your behalf.

What am I voting on?

You are being asked to approve a proposed exchange of outstanding stock options having exercise prices greater than \$23.00 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.

Why are we recommending that shareholders approve this proposal?

Our stock price has experienced a significant decline and volatility during the past several years as a result of a number of factors affecting our business, including most recently the cancellation of, or funding delays associated with, certain defense programs, relative weakness in the semiconductor industry, and slower than expected market adoption of 3D image processing and visualization technology in the life sciences market. As a result, many of our employees hold options with exercise prices significantly higher than the current market price of our common stock. These out-of-the money options are no longer effective as performance and retention incentives, and at the same time they create a significant equity award "overhang."

We believe the proposal is favorable to the interests of shareholders because it will permit us:

- to restore incentives for employees who participate in the exchange program by issuing them restricted stock awards that vest over a three-year period following the exchange if they remain with us; and
- to reduce the significant equity award "overhang" represented by outstanding options that have high exercise prices and are no longer effective as performance and retention incentives.

Why is this proposal being submitted at a special meeting instead of an annual meeting?

Our management and Board of Directors believe that the longer we wait to implement the exchange program the more risk there will be to our ability to retain employees we believe are needed to contribute to the future growth and success of our business. Therefore, we did not believe it prudent to wait until our annual meeting later in the year to act on this proposal.

Who can attend and vote at the meeting?

Shareholders of record at the close of business on June 19, 2006 are entitled to attend and vote at the meeting. Each share of our common stock is entitled to one vote on all matters to be voted on at the meeting, and can be voted only if the record owner is present to vote or is represented by proxy. The proxy card provided with this proxy statement indicates the number of shares of common stock that you own and are entitled to vote at the meeting.

What constitutes a quorum at the meeting?

The presence at the meeting, in person or represented by proxy, of the holders of a majority of the common stock outstanding on June 19, 2006, the record date, will constitute a quorum for purposes of the meeting. On the record date, 21,525,175 shares of common stock were outstanding. For purposes of determining whether a quorum exists, proxies received but marked "abstain" and so-called "broker non-votes" (described below) will be counted as present.

How do I vote by proxy?

If you properly fill in your proxy card and our transfer agent receives it in time to vote at the meeting, your "proxy" (one of the individuals named on your proxy card) will vote your shares as you have directed. No postage is required if your proxy card is mailed in the United States in the return envelope that has been enclosed with this proxy statement.

If you sign, date and return the proxy card but do not specify how your shares are to be voted, then your proxy will vote your shares **FOR** approval of the proposed option exchange program and related amendment to the 2005 Stock Incentive Plan described in this proxy statement.

How do I vote if my shares are held by my broker?

If your shares are held by your broker in "street name," you will need to instruct your broker concerning how to vote your shares in the manner provided by your broker. If your shares are held in "street name" and you wish to vote them in person at the meeting, you must obtain from your broker a properly executed legal proxy, identifying you as a shareholder of the Company, authorizing you to act on behalf of the broker at the meeting and specifying the number of shares with respect to which the authorization is granted.

What discretion does my broker have to vote my shares held in "street name"?

A broker holding your shares in "street name" must vote those shares according to any specific instructions it receives from you. In the absence of such instructions, your broker does not have discretion to vote your shares on the proposed option exchange program and related amendment to the 2005 Stock Incentive Plan. Therefore, without receiving specific instructions from you, your broker will not vote your shares at the meeting, giving rise to what is called a "broker non-vote." Shares represented by broker non-votes will be counted for purposes of determining the existence of a quorum for the transaction of business, but for purposes of determining the number of shares voting at the meeting broker non-votes will not be counted as votes cast or shares voting.

Can I change my vote after I return my proxy card?

Yes. You may change your vote at any time before your proxy is exercised. To change your vote, you may:

- Deliver to our corporate secretary a written notice revoking your earlier vote; or

- Deliver to our transfer agent a properly completed and signed proxy card with a later date; or
- Vote in person at the meeting.

Your attendance at the meeting will not be deemed to revoke a previously-delivered proxy unless you clearly indicate at the meeting that you intend to revoke your proxy and vote in person.

How are votes counted?

The approval of the proposed option exchange program and related amendment to the 2005 Stock Incentive Plan requires the favorable vote of a majority of the votes cast on the matter. Abstentions and broker non-votes, which are described above, will have no effect on the outcome of voting on these matters.

How is the Company soliciting proxies?

We bear the cost of preparing, assembling and mailing the proxy material relating to the solicitation of proxies by the Board of Directors for the meeting. In addition to the use of the mails, certain of our officers and regular employees may, without additional compensation, solicit proxies in person, by telephone or other means of communication. We will also request brokerage houses, custodians, nominees and fiduciaries to forward copies of the proxy material to those persons for whom they hold shares, and will reimburse those record holders for their reasonable expenses in transmitting this material. In addition, we have engaged the services of the Altman Group to assist in the solicitation of proxies for a fee of \$9,000, plus reimbursement of reasonable out-of-pocket expenses.

PROPOSAL TO APPROVE AN OPTION EXCHANGE PROGRAM AND A RELATED AMENDMENT TO THE 2005 STOCK INCENTIVE PLAN TO ALLOW THIS

Overview

On May 31, 2006, our Board of Directors authorized, subject to shareholder approval, a program (the “exchange program”) that will permit our eligible employees to exchange outstanding options with exercise prices greater than \$23.00 per share (“eligible options”) for a lesser number of shares of restricted stock. The exchange program will be open to eligible employees of the Company and any of our subsidiaries designated for participation by the Compensation Committee of our Board of Directors. However, members of our Board of Directors and our five most highly compensated executive officers (including our chief executive officer) will not be eligible to participate.

The ratio of shares subject to eligible options to shares of restricted stock will be 4-to-1. This exchange ratio is intended to result in the issuance of shares of restricted stock having an aggregate value no greater than the aggregate value of the stock options surrendered, determined using the Black-Scholes option valuation model described elsewhere in this proxy statement. Each restricted stock award granted in the exchange program will vest in three equal annual installments commencing on the first anniversary of the date of grant, provided that the grantee remains an employee of the Company or one of our subsidiaries as of each such date. Notwithstanding the foregoing, restricted stock awards granted to participating executive officers will vest as to two-thirds of the covered shares on the second anniversary of grant and as to the remaining one-third on the third anniversary of the date of grant, provided that the executive remains an employee of the Company or one of our subsidiaries as of each such date.

Options to purchase approximately 2,284,244 shares of our common stock will be eligible for exchange, and approximately 571,062 shares of restricted stock will be issued if all eligible options are surrendered in the exchange program. The exercise prices of eligible options range from \$23.03 to \$52.00 per share, and these options are held by 453 employees. All eligible options were granted under our 1997

Stock Option Plan (the “1997 Plan”), and the restricted stock awards in connection with the exchange program will be granted under our 2005 Stock Incentive Plan (the “2005 Plan”).

The exchange program will not take place unless it is approved by shareholders. If shareholder approval of the exchange program is not obtained, currently outstanding options with exercise prices greater than \$23.00 per share will remain outstanding and in effect in accordance with their existing terms.

We believe the exchange program if approved by shareholders will permit us:

- to restore incentives for employees who participate in the exchange program by issuing them restricted stock awards that vest over a three-year period following the exchange if they remain with us; and
- to reduce the significant equity award “overhang” represented by outstanding options that have high exercise prices and are no longer effective as performance and retention incentives.

Therefore, the Board believes the proposed exchange offer is favorable to the interests of our shareholders and unanimously recommends a vote “FOR” approval of the exchange program and related amendment to the 2005 Plan.

Reasons for the Exchange Program

We have granted stock options annually to a substantial portion of our employees. When the Compensation Committee approves the grant of a stock option, it establishes the exercise price that the employee must pay to purchase shares of common stock when the option is exercised. The per share exercise price is set at the market price of a share of our common stock on the date the option is granted. Thus, an employee receives value only if he or she exercises an option and sells the purchased shares at a price that exceeds the option’s exercise price. The granting of stock options is intended to align the interests of our employees with those of our shareholders in terms of increasing the value of our common stock.

Our stock price has experienced a significant decline and volatility during the past several years as a result of a number of factors affecting our business, including most recently the cancellation of, or funding delays associated with, certain defense programs, relative weakness in the semiconductor industry, and slower than expected market adoption of 3D image processing and visualization technology in the life sciences market. As a result, many of our employees hold options with exercise prices significantly higher than the current market price of our common stock. As of June 19, 2006, eligible employees held

options for 2,284,244 shares with exercise prices ranging from \$23.03 per share to \$52.00, while the closing price of our common stock on the Nasdaq National Market on that date was \$14.95.

These “out-of-the-money” options are no longer effective as performance and retention incentives. We believe that to enhance long-term shareholder value we need to maintain competitive employee compensation, incentive and retention programs. An equity stake in the success of the Company is a critical component of these programs. We believe the exchange program will provide us with an opportunity to restore for eligible employees an incentive to remain with us and contribute to the future growth and success of our business.

Moreover, many of the eligible options have been out of the money for an extended period of time and, therefore, have not been exercised by our employees. Coupled with periodic grants of options and other equity-based awards to new and continuing employees, the number of shares subject to outstanding stock options and other unvested equity awards has steadily increased as a percentage of our total shares of common stock outstanding, creating a significant equity award “overhang.” Under the proposed exchange program, participating employees will receive significantly fewer shares of restricted stock than the number of shares subject to options surrendered. Because participating employees will exchange a greater number

4

of options for a lesser number of shares of restricted stock, the number of shares of stock subject to all outstanding stock options and other unvested equity awards will be reduced, thereby reducing the equity award overhang. If all of the eligible options are exchanged for shares of restricted stock in accordance with the 4-to-1 exchange ratio, eligible options for 2,284,244 shares will be surrendered and cancelled, while approximately 571,062 shares of restricted stock will be issued, resulting in a net reduction in the equity award overhang by approximately 1,713,182 shares or approximately 7.96% of the number of shares of our common stock outstanding as of June 19, 2006. All eligible options that are not exchanged will remain outstanding and in effect in accordance with their existing terms.

Text of Proposed Amendment to the 2005 Plan

Immediately following approval of the 2005 Plan by our shareholders on November 14, 2005, our Board of Directors resolved that no further grants of stock options or other awards would thereafter be made under the 1997 Plan. Therefore, the restricted stock awards in connection with the exchange program must be granted under the 2005 Plan. The 2005 Plan does not currently permit us to reduce the exercise price of outstanding options or stock appreciation rights or effect repricing through cancellation and re-grants, with certain exceptions relating to recapitalizations, reorganizations and similar events.

The proposed amendment gives the Compensation Committee of our Board of Directors the authority to implement the option exchange program described in this proxy statement. If shareholders approve this proposal, the following sentence will be added at the end of Section 15 (“Amendments and Termination”) of the 2005 Plan (capitalized terms have the meaning ascribed to them in the 2005 Plan):

“Notwithstanding the foregoing, upon approval of the Company’s shareholders, the Administrator may provide for, and the Company may implement, a one-time only exchange of certain Stock Options for Restricted Stock Awards or Deferred Stock Awards pursuant to the terms of an exchange program described in the Company’s proxy statement relating to the special meeting of shareholders called to be held on August , 2006.”

Implementing the Exchange Program

We have not commenced the exchange program and will not do so unless our shareholders approve this proposal. Provided such approval is received, the exchange program will commence at a time determined by the Compensation Committee. It is currently anticipated that the exchange program will commence as promptly as practicable following approval of this proposal by our shareholders. However, even if the exchange program is approved by our shareholders, the Compensation Committee will retain the authority, in its discretion, to terminate or postpone the exchange program at any time prior to expiration of the election period under the exchange program.

Upon the commencement of the exchange program, eligible employees holding eligible options will receive written materials explaining the precise terms and timing of the exchange program (an “offer to exchange”). Employees will be given at least 20 business days to elect to exchange some or all of their eligible options for shares of restricted stock on a grant-by-grant basis. They will make this election by filling out an election form which will be distributed to them as part of the offer to exchange and submitting the form to our stock plan administrator within the 20 business day period (or such longer period as we choose to keep the offer to exchange open). Once the offer to exchange is closed, eligible options that were surrendered for exchange will be cancelled, and the Compensation Committee will approve grants of restricted stock awards to participating employees in accordance with the 4-to-1 exchange ratio. All such restricted stock awards will be granted under the 2005 Plan and will be subject to the terms of such plan and a restricted stock award agreement to be entered into between the Company and each participating employee.

5

At or before commencement of the exchange program, we will file the offer to exchange with the Securities and Exchange Commission (the “SEC”) as part of a tender offer statement on Schedule TO. Eligible employees, as well as shareholders and members of the public, will be able to obtain the offer to exchange and other documents we file with the SEC free of charge from the SEC’s website at www.sec.gov.

If you are both a shareholder and an eligible employee 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.

Description of the Exchange Program

Eligible Options. As of June 19, 2006, options for approximately 4,837,945 shares of our common stock were outstanding under all of our equity compensation plans. Of these, options to purchase 2,284,244 shares of common stock, having exercise prices ranging from \$23.03 to \$52.00, are held by eligible employees and would be eligible for exchange under the exchange program. The Compensation Committee will retain the discretion to adjust the threshold exercise price of options eligible to participate in the exchange program if there is a significant change in the market price of our common stock preceding the commencement of the exchange program in comparison to the average market price used in determining the exchange ratio as described under “Exchange Ratio” below. However, any options that have exercise prices less than the closing price of our common stock as reported on the Nasdaq National Market on the last day of the election period under the exchange program will not be eligible options.

The 4,837,945 options that were outstanding as of June 19, 2006 have a weighted average exercise price of \$24.70 and a weighted average remaining term of 6.42 years. Of these, the 2,284,244 eligible options have a weighted average exercise price of \$30.697 and a weighted average remaining term of 6.28 years. The 2,553,701 options that were outstanding as of June 19, 2006 and were not eligible for the exchange program have a weighted average exercise price of \$19.34 per share and a weighted average remaining term of 6.54 years.

Eligible Employees. The exchange program will be open to all of our employees and employees of any of our subsidiaries designated for participation by the Compensation Committee who hold eligible options. Members of our Board of Directors and our five most highly compensated executive officers (including our chief executive officer) will not be eligible to participate. We may exclude employees in certain non-U.S. jurisdictions from the exchange program if local law would make their participation infeasible or impractical. To be eligible, an employee must be employed by us or one of our participating subsidiaries both at the time the offer to exchange commences and on the date the surrendered options are cancelled and the restricted stock awards are granted to replace them. Any employee holding eligible options who elects to participate but whose employment terminates for any reason prior to the grant of the restricted stock awards, including voluntary resignation, retirement, involuntary termination, layoff, death or disability, will not be eligible to participate in the exchange program and will instead retain his or her eligible options subject to their existing terms. As of June 19, 2006, eligible options were held by 453 employees.

Exchange Ratio. Our objective in establishing a 4-to-1 exchange ratio is to ensure that the restricted stock awards granted in connection with the exchange program will have an aggregate value no greater than the aggregate value of the stock options surrendered. We calculated the fair value of the eligible options using the Black-Scholes option valuation model. The Black-Scholes model is a common method used for estimating the fair value of a stock option, and we use this model for determining stock-based compensation in our consolidated financial statements. For purposes of determining the fair value of an eligible option under the Black-Scholes model, the following factors were used: (a) the option's exercise price; (b) an assumed value of \$17.78 per share of our common stock, which was the average closing price per share on the Nasdaq National Market over the period from January 3, 2006 to May 31, 2006; (c) an

6

expected volatility of our common stock price of 51%; (d) the remaining contractual life of the stock option; (e) a risk-free interest rate of 4.27%; and (f) no expected dividends. We then selected the 4-to-1 exchange ratio by assuming a \$17.78 per share value for each share of restricted stock to be issued in the exchange program, which was the average closing price per share of our common stock on the Nasdaq National Market over the period from January 3, 2006 to May 31, 2006. According to these calculations, if all of the eligible options are exchanged for shares of restricted stock in accordance with the 4-to-1 exchange ratio, options to purchase 2,284,244 shares, having an aggregate fair value of approximately \$16,245,754, will be surrendered in exchange for approximately 571,062 shares of restricted stock having an assumed fair market value of \$10,153,482.

The total number of shares of restricted stock a participating employee will receive with respect to a surrendered eligible option will be determined by dividing the number of shares subject to the surrendered option by four and rounding to the nearest whole share.

The valuation of the eligible options and the shares of restricted stock that may be issued in the exchange program was made and the exchange ratio was selected on the basis of our average stock price over the period from January 3, 2006 to May 31, 2006. While it is our objective that the restricted stock awards granted in connection with the exchange program have an aggregate value no greater than the aggregate value of the stock options surrendered, use of a fixed exchange ratio will result in certain specific option grants having a lesser fair value (based in the Black-Scholes option valuation model using the assumptions described above) than the value of the shares of restricted stock granted in exchange for those options (based on the assumed stock price for our common stock described above). The Compensation Committee will retain the discretion to adjust the threshold exercise price of options eligible to participate in the exchange program and the exchange ratio if there is a significant change in the market price of our common stock preceding the commencement of the exchange program in comparison to the average market price used in selecting the 4-to-1 exchange ratio. However, in no event will we grant restricted stock awards in connection with the exchange program having an aggregate value (based on the closing price of our common stock on the Nasdaq National Market on the date of grant) greater than the aggregate fair value of the stock options surrendered (based on the Black-Scholes option valuation model using the assumptions described above).

Election to Participate. Participation in the exchange program will be voluntary. Eligible employees will have an election period of at least 20 business days from the commencement of the offer to exchange in which to determine whether they wish to participate.

Vesting of Restricted Stock Awards. Restricted stock awards granted in the exchange program will be completely vested at the time they are granted and will vest in three equal annual installments commencing on the first anniversary of the date of grant, provided that the grantee remains employed by us or one of our subsidiaries as of each such date. Notwithstanding the foregoing, restricted stock awards granted to participating executive officers will vest as to two-thirds of the covered shares on the second anniversary of grant and as to the remaining one-third on the third anniversary of the date of grant, provided that the executive remains employed by us or one of our subsidiaries as of each such date. A participant in the exchange program will forfeit any portion of a restricted stock award that remains unvested at the time his or her employment with us terminates for any reason. The 2005 Plan provides that upon the consummation of a change in control (as defined in the 2005 Plan), 50% of the unvested awards of each grantee with a minimum of six months of service will automatically be fully vested. If such change in control is not approved by our Board of Directors, all of the outstanding awards will automatically become fully vested. Pursuant to the terms of change in control severance agreements between the Company and each of its executive officers and certain other key employees, if the executive is employed by the Company upon the occurrence of a change in control (as defined in the agreements), then vesting of all the executive's then outstanding stock options and other stock-based awards immediately accelerates and all such awards become exercisable and non-forfeitable.

7

Effect on the 2005 Plan. As of June 19, 2006, 911,259 shares of common stock were available for future grants under the 2005 Plan. Under the terms of the 2005 Plan, the grant of a restricted stock award reduces the number of shares of common stock available for issuance under the 2005 Plan by one and three-quarters (1.75) shares of common stock for each such share actually subject to a restricted stock award. Also under the terms of the 2005 Plan, any shares subject to outstanding awards granted under the 1997 Plan that are forfeited, cancelled, expire or are terminated (other than by exercise) are added back to the number of shares available for issuance under the 2005 Plan. All eligible options were granted under the 1997 Plan. Assuming all of the eligible options are surrendered and cancelled in the exchange program, and restricted stock awards are granted in accordance with the 4-to-1 exchange ratio, a net of approximately 1,284,887 shares would be added to the number of shares available for issuance under the 2005 Plan.

Potential Modification to Exchange Program to Comply with Governmental Requirements. The terms of the exchange program will be described in an offer to exchange that will be filed with the SEC. Although we do not anticipate that the SEC would require us to modify the terms materially, it is possible that we will need to alter the terms of the exchange program to comply with comments from the SEC. In addition, we intend to make the exchange program available to our employees who are located outside the United States, where permitted by local law and where we determine it is feasible and practical to do so. It is possible that we may need to make modifications to the terms offered to employees in countries outside the U.S. to comply with local requirements, or for tax or accounting reasons. For example, we currently anticipate that the exchange offer will be modified for certain employees located outside the U.S. to grant deferred stock awards instead of restricted stock awards in exchange for surrendered eligible options, and to modify the vesting schedule of such deferred stock awards to provide that two-thirds of each such award will vest on the second anniversary of the date of grant, and the remaining one-third of each such award will vest on the third anniversary of the date of grant.

New Plan Benefits

Because the decision whether to participate in the exchange program is completely voluntary, we are not able to predict who or how many employees will elect to participate, how many options will be surrendered for exchange or the number of shares of restricted stock that may be issued. As noted above, members of our Board of Directors and our five most highly compensated executive officers (including our chief executive officer) are not eligible to participate in the exchange program.

The information in the following table assumes that all of the eligible options are exchanged and restricted stock awards are granted in accordance with the 4-to-1 exchange ratio.

Name and Position	Eligible Options			Restricted Stock Awards	
	Dollar Value(1)	Number	Exercise Prices	Dollar Value(2)	Number
All executive officers as a group(3)	\$ 1,773,566	217,110	\$ 23.44–37.15	\$ 965,062	54,278
All non-executive officer directors(4)	—	—	—	—	—
Employees as a group (excluding executive officers)	14,472,188	2,067,134	\$ 23.03–52.00	9,188,420	516,784

(1) The estimated dollar value of the eligible options was calculated using the Black-Scholes option valuation model, using the assumptions described under the heading “Description of the Exchange Program—*Exchange Ratio*.”

(2) The estimated dollar value of the restricted stock awards represents the average closing price of our common stock on the Nasdaq National Market over the period from January 3, 2006 to May 31, 2006 (\$17.78), multiplied by the number of shares of restricted stock covered by the award.

(3) Excludes our five most highly compensated executive officers (including our chief executive officer) for the fiscal year ended June 30, 2006, who are not eligible to participate in the exchange program.

(4) Members of our Board of Directors will not be eligible to participate in the exchange program.

Summary of U.S. Federal Income Tax Consequences

The exchange of eligible options for shares of restricted stock pursuant to the exchange program should be treated as a non-taxable exchange and the Company, our shareholders and our employees generally should recognize no income for U.S. federal income tax purposes upon the surrender of eligible options and the grant of restricted stock awards. A summary of the U.S. federal tax consequences relating to restricted stock awards is set forth below under the heading “Summary of the 2005 Plan—*Tax Aspects Under the Code—Restricted Stock Awards*.” The tax consequences for participating non-U.S. employees may differ from the U.S. federal income tax consequences.

Accounting Impact

On July 1, 2005, we adopted the provisions of Financial Accounting Standards Board Statement of Financial Accounting Standards No. 123R, or SFAS 123R, on accounting for share-based payments. Under SFAS 123R, we expect to recognize the incremental compensation cost of the restricted stock awards granted in the exchange program. The incremental compensation cost will be measured as the excess, if any, of the fair value of each restricted stock award granted to employees in exchange for surrendered stock options, measured as of the date such awards are granted, over the fair value of the original stock option grant surrendered in exchange for such awards, measured immediately before the exchange. The incremental and remaining compensation expense associated with the exchange program will be recognized over the three-year service period of such awards. If any portion of the restricted stock awards is forfeited prior to the completion of the service condition due to termination of employment, the compensation cost for the forfeited portion of the restricted stock award will be reversed and will not be recognized. The accounting treatment relating to the granting of any deferred stock awards in exchange for surrendered stock options will be similar to the treatment for restricted stock awards.

Effect on Shareholders

We are unable to predict the impact of the exchange program on our shareholders because we are unable to predict how many or which employees will exchange their eligible options. The exchange program was designed to be no less than value neutral to our shareholders and to reduce the dilution in ownership from outstanding equity awards. If all of the eligible options are exchanged for shares of restricted stock in accordance with the 4-to-1 exchange ratio, eligible options for 2,284,244 shares will be surrendered and cancelled, while approximately 571,062 shares of restricted stock will be issued, resulting in a net reduction in the equity award overhang by approximately 1,713,182 shares or approximately 7.96% of the number of shares of our common stock outstanding as of June 19, 2006.

Equity Compensation Plans

The following table sets forth information as of June 30, 2006 with respect to existing compensation plans under which our equity securities are authorized for issuance.

Plan Category	Number of Securities to be Issued upon Exercise of Outstanding Options, Warrants and Rights(1)	Weighted-Average Exercise Price of Outstanding Options, Warrants and Rights	Number of Securities Remaining Available for Future Issuance under Equity Compensation Plans (excluding securities reflected in the first column)
Equity compensation plans approved by shareholders(2)	4,837,945(3)	\$ 24.70	(4)
Equity compensation plans not approved by shareholders	—	—	—
TOTAL	4,837,945	\$ 24.70	

- (1) Does not include outstanding unvested restricted stock and deferred stock awards.
- (2) Consists of our 1991, 1997 and 1998 Stock Option Plans, the 2005 Plan and our 1997 Employee Stock Purchase Plan, as amended (“ESPP”).
- (3) Does not include purchase rights under the ESPP, as the purchase price and number of shares to be purchased is not determined until the end of the relevant purchase period.
- (4) Includes shares available for future issuance under the ESPP and 911,259 shares available for future issuance under the 2005 Plan. We are no longer permitted to grant awards under our 1991, 1997 and 1998 plans.

Summary of the 2005 Plan

The following description of certain features of the 2005 Plan is intended to be a summary only.

Term of the Plan. The 2005 Plan was adopted by our Board of Directors on September 14, 2005, and became effective upon receiving approval by our shareholders on November 14, 2005. Awards of incentive stock options may be granted under the 2005 Plan until September 14, 2015. No other awards may be granted under the 2005 Plan after November 14, 2015. Our Board may discontinue the 2005 Plan at any time.

Plan Administration. The Compensation Committee has full power to select, from among the individuals eligible for awards, the individuals to whom awards will be granted, to make any combination of awards to participants, and to determine the specific terms and conditions of each award, subject to the provisions of the 2005 Plan. The Compensation Committee currently consists of the following members of our Board of Directors: George W. Chamillard, Russell K. Johnsen, Sherman N. Mullin, and Richard P. Wishner. The Compensation Committee may delegate to the chief executive officer or any other executive officers the authority to grant awards at fair market value to employees who are not subject to the reporting and other provisions of Section 16 of the Securities Exchange Act of 1934.

Shares Available for Issuance under the 2005 Plan. Stock options and awards based on common stock may be issued under the 2005 Plan for the number of shares of the Company’s common stock, par value \$.01 per share, equal to the sum of (i) 1,942,264 (which equals the number of shares of common stock that remained available for grants under the 1997 Plan on November 14, 2005 (the date the 2005 Plan was approved by our shareholders)), plus (ii) the number of shares of common stock underlying grants under the 1997 Plan that are forfeited, cancelled or terminated (other than by exercise) from and after

November 14, 2005, subject to adjustment. If the exchange program is approved by shareholders and implemented, and if all of the eligible options are exchanged for shares of restricted stock in accordance with the 4-to-1 exchange ratio, a net of approximately 1,284,887 shares would be added to the number of shares available for issuance under the 2005 Plan.

Shares of common stock underlying any stock options and other awards that are forfeited, cancelled, expire or are otherwise terminated (other than by exercise) will be added back to the shares of common stock available for issuance under the 2005 Plan. Shares tendered or held back upon exercise of a stock option or settlement of an award to cover the exercise price or tax withholding will not be available for future issuance under the 2005 Plan. In addition, upon exercise of stock appreciation rights, the gross number of shares exercised will be deducted from the total number of shares remaining available for issuance under the 2005 Plan.

The grant of any award other than an option or a stock appreciation right will reduce the number of shares of common stock available for issuance under the 2005 Plan by one and three-quarters (1.75) shares of common stock for each such share actually subject to the award and will be deemed as an award of 1.75 shares of common stock for each such share actually subject to the award. The grant of an option or a stock appreciation right will be deemed as an award of one share of common stock for each such share actually subject to the award.

If the Company’s capital structure changes, because of a stock dividend, a reorganization or similar event, the number of shares that can be issued under the 2005 Plan will be appropriately adjusted.

As of June 19, 2006, stock options and other unvested restricted stock and deferred stock awards under the 2005 Plan covering 1,020,130 shares of common stock were outstanding, and 911,259 shares were available for future grants under the 2005 Plan (assuming no outstanding awards under the 1997 Plan are forfeited, cancelled or terminated (other than by exercise) after such date). Based solely on the closing price of the common stock as reported by the Nasdaq National Market on June 19, 2006 (\$14.95), the maximum aggregate market value of the common stock that could potentially be issued under the 2005 Plan as of such date (including unvested restricted stock awards) is approximately \$28,874,266.

Eligibility and Limitations on Grants. Persons eligible to participate in the 2005 Plan will be those full or part-time officers, employees, non-employee directors and other key persons (including consultants and prospective officers) of the Company and its subsidiaries as selected from time to time by the Compensation Committee. Approximately 550 individuals are currently eligible to participate in the 2005 Plan.

The maximum award of stock options or stock appreciation rights granted to any one individual will not exceed 200,000 shares of common stock (subject to adjustment for stock splits and similar events) for any calendar year period. If any award of restricted stock or deferred stock granted to an individual is intended to qualify as “performance-based compensation” under Section 162(m) of the Internal Revenue Code of 1986, as amended (the

“Code”), then the maximum award shall not exceed 300,000 shares of common stock (subject to adjustment for stock splits and similar events) to any one such individual in any performance cycle.

Stock Options. The 2005 Plan permits the granting of (1) options to purchase common stock intended to qualify as incentive stock options under Section 422 of the Code and (2) options that do not so qualify. Options granted under the 2005 Plan will be non-qualified options if they fail to qualify as incentive stock options or exceed the annual limit on incentive stock options. Non-qualified options may be granted to any persons eligible to receive incentive stock options and to non-employee directors and key persons. The option exercise price of each option will be determined by the Compensation Committee but may not be less than 100% of the fair market value of the common stock on the date of grant. The

maximum number of shares that can be granted in the form of incentive stock options cannot exceed 1,960,304.

The term of each option will be fixed by the Compensation Committee and may not exceed ten years from the date of grant. The Compensation Committee will determine at what time or times each option may be exercised. Options may be made exercisable in installments and the exercisability of options may be accelerated by the Compensation Committee. Options may be exercised in whole or in part with written notice to the Company.

Upon exercise of options, the option exercise price must be paid in full either in cash, by certified or bank check or other instrument acceptable to the Compensation Committee, or by delivery (or attestation to the ownership) of shares of common stock that are beneficially owned by the optionee. Subject to applicable law, the exercise price may also be delivered to the Company by a broker pursuant to irrevocable instructions to the broker from the optionee.

To qualify as incentive stock options, options must meet additional federal tax requirements, including a \$100,000 limit on the value of shares subject to incentive options that first become exercisable by a participant in any one calendar year.

Stock Appreciation Rights. The Compensation Committee may award a stock appreciation right either as a freestanding award or in tandem with a stock option. The Compensation Committee may award stock appreciation rights subject to such conditions and restrictions as the Compensation Committee may determine, provided that (1) upon exercise of a stock appreciation right granted in tandem with an option, the applicable portion of any related option shall be surrendered and (2) stock appreciation rights granted in tandem with options are exercisable at such time or times and to the extent that the related stock options are exercisable.

Restricted Stock. The Compensation Committee may award shares of common stock to participants subject to such conditions and restrictions as the Compensation Committee may determine. These conditions and restrictions may include the achievement of certain performance goals and/or continued employment with the Company through a specified restricted period. However, in the event these awards have a performance-based goal, the restriction period will be at least one year, and in the event these awards have a time-based restriction, the restriction period will be at least three years, but vesting can occur incrementally over the three-year period.

Deferred Stock Awards. The Compensation Committee may award phantom stock units as deferred stock awards to participants. Deferred stock awards are ultimately payable in the form of shares of common stock and may be subject to such conditions and restrictions as the Compensation Committee may determine. These conditions and restrictions may include the achievement of certain performance goals and/or continued employment with the Company through a specified vesting period. However, in the event these awards have a performance-based goal, the restriction period will be at least one year, and in the event these awards have a time-based restriction, the restriction period will be at least three years, but vesting can occur incrementally over the three-year period. In the Compensation Committee’s sole discretion and subject to the participant’s compliance with the procedures established by the Compensation Committee and requirements of Section 409A of the Code, it may permit a participant to make an advance election to receive a portion of his or her future cash compensation otherwise due in the form of a deferred stock award.

Detrimental Activity. The Compensation Committee may cancel, rescind, suspend or otherwise limit any award to a participant if the participant engages in detrimental activities, including rendering services to one of our competitors, disclosing confidential information without permission, refusing to assign inventions to the Company, soliciting our employees or customers, engaging in an activity that results in a

termination for cause, materially violating any of our internal policies, or being convicted of, or pleading guilty to, a crime.

Tax Withholding. Participants in the 2005 Plan are responsible for the payment of any federal, state or local taxes that the Company is required by law to withhold upon any option exercise or vesting of other awards. Subject to approval by the Compensation Committee, participants may elect to have the minimum tax withholding obligations satisfied either by authorizing the Company to withhold shares of common stock to be issued pursuant to an option exercise or other award, or by transferring to the Company shares of common stock having a value equal to the amount of such taxes.

Change in Control Provisions. The 2005 Plan provides that upon consummation of a change in control of the Company (as defined in the 2005 Plan), 50% of the unvested awards of each grantee with a minimum of six months of service will automatically be fully vested. If such change in control is not approved by the Board, all of the outstanding awards will automatically become fully vested.

Amendments and Termination. Our Board of Directors may at any time amend or discontinue the 2005 Plan and the Compensation Committee may at any time amend or cancel any outstanding award for the purpose of satisfying changes in the law or for any other lawful purpose. However, no such action may adversely affect any rights under any outstanding award without the holder’s consent. Any amendments that materially change the terms of the 2005 Plan, including any amendments that increase the number of shares reserved for issuance under the 2005 Plan, expand the types of awards available, materially expand the eligibility to participate in, or materially extend the term of, the 2005 Plan, or materially change the method of determining the fair market value of common stock, will be subject to approval by shareholders. Amendments shall also be subject to approval by shareholders if and to the extent determined by the Compensation Committee to be required by the Code to preserve the qualified status of incentive options or to ensure that compensation earned under the 2005 Plan qualifies as performance-based compensation under Section 162(m) of the Code. In addition, except in connection with a reorganization or other similar change in our capital stock or a merger or other transaction, the Compensation Committee may not reduce the exercise price of an outstanding stock option or stock appreciation right or effect repricing of an outstanding stock option or stock appreciation right through cancellation and re-grant. Notwithstanding the foregoing, if the proposed option exchange program and related amendment to the 2005 Plan are approved, the Compensation Committee will be authorized to implement the option exchange program described in this proxy statement.

Tax Aspects Under the Code. The following is a summary of the principal U.S. federal income tax consequences of certain transactions under the 2005 Plan. It does not describe all federal tax consequences under the 2005 Plan, nor does it describe state or local tax consequences.

Incentive Options. No taxable income is generally realized by the optionee upon the grant or exercise of an incentive stock option. If shares of common stock issued to an optionee pursuant to the exercise of an incentive option are sold or transferred after two years from the date of grant and after one year from the date of exercise, then (1) upon sale of such shares, any amount realized in excess of the option price (the amount paid for the shares) will be taxed to the optionee as a long-term capital gain, and any loss sustained will be a long-term capital loss, and (2) there will be no deduction for the Company for federal income tax purposes. The exercise of an incentive option will give rise to an item of tax preference that may result in alternative minimum tax liability for the optionee.

If shares of common stock acquired upon the exercise of an incentive option are disposed of prior to the expiration of the two-year and one-year holding periods described above (a “disqualifying disposition”), generally (a) the optionee will realize ordinary income in the year of disposition in an amount equal to the excess (if any) of the fair market value of the shares of common stock at exercise, and (b) the Company will be entitled to deduct such amount. Special rules will apply where all or a portion of the exercise price of the incentive option is paid by tendering shares of common stock.

13

If an incentive option is exercised at a time when it no longer qualifies for the tax treatment described above, the option will be treated as a non-qualified option. Generally, an incentive option will not be eligible for the tax treatment described above if it is exercised more than three months following termination of employment (or one year in the case of termination of employment by reason of disability). In the case of termination of employment by reason of death, the three-month rule does not apply.

Non-Qualified Options. No income is realized by the optionee at the time the option is granted. Generally (i) at exercise, ordinary income is realized by the optionee in an amount equal to the difference between the option price and the fair market value of the shares of common stock on the date of exercise, and the Company receives a tax deduction for the same amount, and (ii) at disposition, appreciation or depreciation after the date of exercise is treated as either short-term or long-term capital gain or loss depending on how long the shares of common stock have been held. Special rules will apply where all or a portion of the exercise price of a non-qualified option is paid by tendering shares of common stock. Upon exercise, the optionee will also be subject to Social Security taxes on the excess of the fair market value over the exercise price of the option.

Restricted Stock Awards. No income is generally realized by the grantee at the time the restricted stock award is granted unless the grantee makes an election under Section 83(b) of the Code within 30 days of the grant. If the grantee makes such a “Section 83(b) election” within the 30-day period, (1) the grantee will realize taxable compensation income equal to the value of the shares minus the purchase price, if any, and (b) the Company will be entitled to a corresponding tax deduction. When the grantee sells the shares after making a Section 83(b) election, he or she will realize capital gain or loss equal to the difference between the proceeds from the sale and the value of the shares on the grant date. If the grantee makes a Section 83(b) election and subsequently forfeits the shares, he or she will not be entitled to a deduction as a result of the forfeiture, but the Company must include as ordinary income the amount it previously deducted in the year of grant with respect to such shares.

If the grantee does not make a Section 83(b) election, (a) he or she will realize taxable compensation income when the restricted stock vests equal to the value of the shares upon vesting minus the purchase price, if any, and the Company will be entitled to a tax deduction for the same amount, and (b) at disposition, appreciation or depreciation after the vesting date is treated as either short-term or long-term capital gain or loss, depending on how long the shares have been held. Upon vesting, the grantee will also be subject to Social Security taxes on the value of the shares upon vesting minus the purchase price, if any.

Parachute Payments. The vesting of any portion of an option or other award that is accelerated due to the occurrence of a change in control may cause a portion of the payments with respect to such accelerated awards to be treated as “parachute payments” as defined in the Code. Any such parachute payments may be non-deductible to the Company, in whole or in part, and may subject the recipient to a non-deductible 20% federal excise tax on all or a portion of such payment (in addition to other taxes ordinarily payable).

Limitation on the Company's Deductions. As a result of Section 162(m) of the Code, the Company's deduction for certain awards under the 2005 Plan may be limited to the extent that the chief executive officer, or other executive officer whose compensation is required to be reported in the summary compensation table contained in the Company's proxy statement for the annual meeting of shareholders, receives compensation in excess of \$1 million a year (other than performance-based compensation that otherwise meets the requirements of Section 162(m) of the Code). The 2005 Plan is structured to allow grants to qualify as performance-based compensation.

14

VOTING SECURITIES

Who owns more than 5% of our stock?

On June 19, 2005, there were 21,525,175 shares of our common stock outstanding. On that date, to our knowledge there were four shareholders who owned beneficially more than 5% of our common stock. The table below contains information, as of that date (except as noted below), regarding the beneficial ownership of these persons or entities. Unless otherwise indicated, we believe that each of the persons or entities listed below has sole voting and investment power with respect to all the shares of common stock indicated.

<u>Name and Address of Beneficial Owner</u>	<u>Number of Shares Beneficially Owned</u>	<u>Percent of Class</u>
FMR Corporation(1)	2,230,938	10.36%

James R. Bertelli(2)	1,198,703	5.48%
Barclays Global Investors, N.A.(3)	1,109,022	5.15%
T. Rowe Price Associates, Inc.(4)	1,109,000	5.15%

- (1) Based on a Schedule 13G filed with the SEC on January 10, 2006 reporting beneficial ownership as of December 31, 2005 by FMR Corporation and Edward C. Johnson III. The filing reported sole voting power with respect to 100 shares and sole investment power with respect to 2,230,938 shares. The reporting entities' address is 82 Devonshire Street, Boston, Massachusetts 02109.
- (2) Includes (a) 805,027 shares owned by Mr. Bertelli individually; (b) 344,750 shares which may be acquired by Mr. Bertelli within 60 days of June 19, 2006 through the exercise of stock options; (c) 36,526 restricted shares awarded under the Company's stock-based plans (as to which Mr. Bertelli has sole voting power, but no investment power); and (d) 12,400 shares owned by Mr. Bertelli's spouse, as to which Mr. Bertelli disclaims beneficial ownership. Mr. Bertelli's address is c/o Mercury Computer Systems, Inc., 100 Riverneck Road, Chelmsford, Massachusetts 01824.
- (3) Based on a Schedule 13G filed with the SEC on January 26, 2006 reporting beneficial ownership as of December 31, 2005 by Barclays Global Investors, N.A. (619,907 shares) and Barclays Global Fund Advisors (489,115 shares). The filing reported Barclays Global Investors, N.A. as having sole voting power with respect to 524,634 shares and sole investment power with respect to 619,907 shares, and Barclays Global Fund Advisors as having sole voting and investment power with respect to 489,115 shares. The reporting entities' address is 45 Fremont Street, San Francisco, California 94105.
- (4) Based on a Schedule 13G filed with the SEC on February 14, 2006 reporting beneficial ownership as of December 31, 2005. The filing reported sole voting power with respect to 195,300 shares and sole investment power with respect to 1,109,000 shares. The reporting entity's address is 100 E. Pratt Street, Baltimore, Maryland 21202.

15

How much stock do the Company's directors and executive officers own?

The following information is furnished as of June 19, 2006, with respect to common stock beneficially owned by: (1) our directors (including our chief executive officer); (2) our four most highly compensated executive officers other than the chief executive officer; and (3) all directors and executive officers as a group. Unless otherwise indicated, the individuals named below held sole voting and investment power over the shares listed.

Name and Address of Beneficial Owner*	Number of Shares Beneficially Owned	Percent of Class(1)
Dr. Gordon B. Baty(2)	111,816	**
Dr. Albert P. Belle Isle(3)	97,952	**
James R. Bertelli(4)	1,198,703	5.48%
George W. Chamillard(5)	21,000	**
Russell K. Johnsen(6)	47,520	**
Sherman N. Mullin(7)	66,962	**
Lee C. Steele(8)	32,500	**
Dr. Richard P. Wishner(9)	33,000	**
Robert E. Hult(10)	77,977	**
Marcelo G. Lima(11)	28,332	**
Craig Lund(12)	91,733	**
Didier M.C. Thibaud(13)	136,188	**
All directors and executive officers as a group (17 persons)(14)	2,276,027	10.06%

* Unless otherwise indicated, the address is c/o Mercury Computer Systems, Inc., 199 Riverneck Road, Chelmsford, Massachusetts 01824.

** Less than 1.0%.

- (1) The number and percent of the shares of common stock with respect to each beneficial owner are calculated by assuming that all shares which may be acquired by such person within 60 days of June 19, 2006 are outstanding.
- (2) Includes (a) 56,864 shares owned by Dr. Baty individually; (b) 37,952 shares which may be acquired within 60 days of June 19, 2006 through the exercise of stock options; and (c) 17,000 shares owned by Dr. Baty's spouse, as to which Dr. Baty disclaims beneficial ownership.
- (3) Includes (a) 60,000 shares owned by Dr. Belle Isle individually; and (b) 37,952 shares which may be acquired by Dr. Belle Isle within 60 days of June 19, 2006 through the exercise of stock options.
- (4) Includes (a) 805,027 shares owned by Mr. Bertelli individually; (b) 344,750 shares which may be acquired by Mr. Bertelli within 60 days of June 19, 2006 through the exercise of stock options; (c) 36,526 restricted shares awarded under the Company's stock-based plans (as to which Mr. Bertelli has sole voting power, but no investment power); and (d) 12,400 shares owned by Mr. Bertelli's spouse, as to which Mr. Bertelli disclaims beneficial ownership.
- (5) Includes 21,000 shares which may be acquired by Mr. Chamillard within 60 days of June 19, 2006 through the exercise of stock options.

16

- (6) Includes (a) 3,000 shares owned jointly by Mr. Johnsen and his spouse (as to which Mr. Johnsen shares voting and investment power); and (b) 44,520 shares which may be acquired by Mr. Johnsen within 60 days of June 19, 2006 through the exercise of stock options.
- (7) Includes (a) 19,036 shares owned jointly by Mr. Mullin and his spouse (as to which Mr. Mullin shares voting and investment power); and (b) 47,926 shares which may be acquired by Mr. Mullin within 60 days of June 19, 2006 through the exercise of stock options.
- (8) Includes (a) 2,000 shares owned by Mr. Steele individually; and (b) 30,500 shares which may be acquired by Mr. Steele within 60 days of June 19, 2006 through the exercise of stock options.
- (9) Includes (a) 2,500 shares owned jointly by Dr. Wishner and his spouse (as to which Dr. Wishner shares voting and investment power); and (b) 30,500 shares which may be acquired by Dr. Wishner within 60 days of June 19, 2006 through the exercise of stock options.
- (10) Includes (a) 6,000 shares owned by Mr. Hult individually; (b) 50,000 shares which may be acquired by Mr. Hult within 60 days of June 19, 2006 through the exercise of stock options; and (c) 21,997 restricted shares awarded to Mr. Hult under the Company's stock-based plans (as to which Mr. Hult has sole voting power, but no investment power).
- (11) Includes (a) 15,500 shares which may be acquired by Mr. Lima within 60 days of June 19, 2006 through the exercise of stock options; and (b) 12,832 restricted shares awarded to Mr. Lima under the Company's stock-based plans (as to which Mr. Lima has sole voting power, but no investment power).
- (12) Includes (a) 81,780 shares which may be acquired by Mr. Lund within 60 days of June 19, 2006 through the exercise of stock options; and (b) 9,953 restricted shares awarded to Mr. Lund under the Company's stock-based plans (as to which Mr. Lund has sole voting power, but no investment power).
- (13) Includes (a) 113,190 shares which may be acquired by Mr. Thibaud within 60 days of June 19, 2006 through the exercise of stock options; and (b) 22,998 restricted shares awarded to Mr. Thibaud under the Company's stock-based plans (as to which Mr. Thibaud has sole voting power, but no investment power).
- (14) Includes (a) 970,884 shares owned by directors and executive officers individually; (b) 24,536 shares owned jointly by directors and executive officers and their respective spouses (as to which each shares voting and investment power); (c) 1,095,929 shares which may be acquired within 60 days of June 19, 2006 through the exercise of stock options; (d) 155,278 restricted shares awarded to the executive officers under the Company's stock-based plans (as to which each has sole voting power, but no investment power); and (e) 29,400 shares owned individually by spouses of directors and executive officers, as to which the directors and executive officers disclaim beneficial ownership.

EXECUTIVE COMPENSATION

How were the executive officers compensated for fiscal year 2006?

The following table sets forth all compensation paid to our chief executive officer and each of our other four most highly compensated executive officers, who are collectively referred to as the "named executive officers," in all capacities for the last three fiscal years.

17

Summary Compensation Table

Name and Principal Position	Year	Annual Compensation			Long-Term Compensation Awards(1)		All Other Compensation(5)
		Salary	Bonus(2)	Other Annual Compensation(3)	Restricted Stock Awards(4)	Securities Underlying Options (#)	
James R. Bertelli President and Chief Executive Officer	2006	\$ 436,180	—	\$ 36,048	\$ 512,700	—	\$ 78,916
	2005	419,015	\$ 419,083	42,988	174,570	75,000	90,490
	2004	387,986	288,123	—	—	75,000	62,016
Robert E. Hult Senior Vice President, Operations and Finance, Chief Financial Officer(6)	2006	259,658	10,584	—	407,625	62,000	5,668
	2005	250,016	172,890	—	66,795	—	8,381
	2004	81,736	71,511	—	—	100,000	2,174
Marcelo G. Lima Vice President and General Manager, Commercial Imaging and Visualization(7)	2006	212,334	96,120	—	241,125	69,000	7,658
	2005	—	—	—	—	—	—
	2004	—	—	—	—	—	—
Craig Lund Vice President, Chief Technology Officer	2006	228,488	6,886	—	138,000	54,000	27,015
	2005	219,281	135,839	—	52,243	22,000	33,458
	2004	196,630	108,953	—	—	16,000	3,244
Didier M.C. Thibaud Senior Vice President, Defense and Commercial Businesses(8)	2006	[239,795]	46,087	[25,582]	431,775	77,000	23,142
	2005	228,434	149,803	30,820	56,121	20,000	23,142
	2004	176,857	112,607	18,625	—	15,000	23,142

- (1) We have not issued stock appreciation rights. In addition, we do not maintain a "long-term incentive plan," as that term is defined by applicable SEC rules. Securities underlying options are shares of our common stock.
- (2) For fiscal year 2006, the amounts shown represent bonuses actually paid to the named executive officer prior to the date of this proxy statement for such fiscal year. Anticipated additional bonus payments for fiscal year 2006 could not be determined as of the date of this proxy statement. For prior fiscal years, the amounts shown represent payments under our annual bonus program and, for fiscal year 2005, under our Long-Term Incentive Plan ("LTIP"). Fifty percent (50%) of the bonus under the LTIP for each named executive officer was paid in the form of restricted shares in lieu of cash. The dollar value of these restricted shares is excluded from the amounts reported in this column, and is included under the column heading "Restricted Stock Awards".
- (3) The amounts shown for fiscal years 2006 and 2005 for Mr. Bertelli represent gross-up payments for his tax liability arising from our payment of premiums on executive life insurance policies for his benefit. The amount shown for fiscal 2006 for Mr. Thibaud includes (a) \$13,260 in payments related to a Company-provided leased automobile and (b) \$12,325 in gross-up payment for his tax liability arising from our payment of premiums on an executive life insurance policy for his benefit. The amount shown for fiscal year 2005 for Mr. Thibaud includes (a) \$18,658 in payments related to a Company-provided leased automobile and (b) \$12,162 in gross-up payment for his tax liability arising from our payment of premiums on an executive life insurance policy for his benefit. The amount shown for fiscal year 2004 for Mr. Thibaud represents payments related to a Company-provided leased automobile.

- (4) The amounts shown for fiscal year 2006 represent three separate grants of restricted stock awards. On August 12, 2005, we granted restricted stock awards to the named executive officers as follows: Mr. Hult (7,500 shares); Mr. Lima (4,500 shares); and Mr. Thibaud (7,500). Each of these awards vests in full on the fourth anniversary of the date of grant, provided that the grantee remains an employee of the Company as of that date. On February 20, 2006, we granted restricted stock awards to

the named executive officers as follows: Mr. Hult (12,000 shares); Mr. Lima (7,000 shares); Mr. Lund (8,000 shares); and Mr. Thibaud (13,400 shares). On February 22, 2006, we granted a restricted stock award covering 30,000 shares to Mr. Bertelli. Each of the awards made in February 2006 vests in three equal annual installments, beginning on the first anniversary of the date of grant, provided that the grantee remains an employee of the Company or, in the case of Mr. Bertelli, either an employee or a director of the Company, as of each such date.

The amounts shown for fiscal year 2005 represent the value on the date of grant of restricted shares that were awarded to each named executive officer in lieu of cash under the LTIP. These awards vest in four equal annual installments, beginning on the first anniversary of the date of grant, provided that the grantee remains an employee of the Company or, in the case of Mr. Bertelli, either an employee or a director of the Company, as of each such date.

Pursuant to the terms of change in control severance agreements between the Company and each of the named executive officers, all of these restricted stock awards will vest in full immediately upon the occurrence of a change in control of the Company. Dividends, if any, are payable on unvested awards to the same extent as they are paid on the common stock generally. As of June 30, 2006, each of the named executive officers held the following number of unvested shares of restricted stock having the corresponding fiscal year-end values, based on the closing price (\$ _____) of the common stock on the Nasdaq National Market on June 30, 2006:

Name	Number of Shares	Value at Fiscal Year End
James R. Bertelli	36,526	\$
Robert E. Hult	21,997	
Marcelo G. Lima	12,832	
Craig Lund	9,953	
Didier M.C. Thibaud	22,998	

- (5) The table below presents the components of this column for fiscal year 2006, which represent (a) the value of the Company's matching contributions to the account of each named executive officer pursuant to the terms of our 401(k) plan, and (b) the value of premiums we paid for executive life insurance policies for the benefit of such individuals.

Name	401(k) Plan Matching Contribution	Executive Life Insurance Premiums
James R. Bertelli	\$ 6,785	\$ 72,131
Robert E. Hult	5,668	—
Marcelo G. Lima	7,658	—
Craig Lund	5,901	21,114
Didier M.C. Thibaud	—	23,142

- (6) Mr. Hult joined the Company in February 2004.
- (7) Mr. Lima became an executive officer of the Company in November 2005.
- (8) A portion of Mr. Thibaud's salary is paid in U.S. Dollars, which is attributable to his employment with the Company in the United States, and the remainder is paid in Euros, which is attributable to his employment with Mercury Computer Systems SARL in France. All of his bonus is paid in U.S. Dollars. Due to fluctuations in the conversion rate between Euros and U.S. Dollars ("USD"), the amounts in the salary column reflect fiscal year-end conversion rates, rather than the USD equivalent at the time the salary was determined. Amounts in the other annual compensation column

attributable to payments related to a leased automobile provided by the Company are treated in the same manner as salary. With respect to the portions of Mr. Thibaud's bonuses that were paid in Euros, the table reflects the conversion rate at the time each such bonus payment was made.

Option Grants, Exercises and Holdings

The following table provides details regarding stock options granted under the 2005 Plan to the named executive officers during the fiscal year ended June 30, 2006. The table also shows hypothetical values of our common stock obtainable upon exercise of each option grant, net of the option's exercise price, assuming that the market price of our common stock appreciates at compound annual rates of 5% and 10% over the ten-year term of the option. The assumed rates of appreciation are presented as examples pursuant to the SEC's rules of disclosure of executive compensation. We do not advocate or necessarily agree that these rates are indicative of future growth in the market price of our common stock. We did not issue any stock appreciation rights during the fiscal year.

Option Grants in Last Fiscal Year

Name	Individual Grants		Exercise Price (\$/Share)(2)	Expiration Date	Potential Realizable Value At Assumed Rates of Stock Price Appreciation for Option Term	
	Number of Securities Underlying Options Granted #(1)	Percent of Total Options Granted to Employees in Fiscal Year (%)			5%	10%
James R. Bertelli	—	—	—	—	—	—
Robert E. Hult	62,000	10.87%	\$ 16.36	6/1/16	\$ 637,900	\$ 1,616,565

Marcelo G. Lima	69,000	12.10%	\$ 16.36	6/1/16	709,921	1,799,080
Craig Lund	54,000	9.47%	\$ 16.36	6/1/16	555,591	1,407,976
Didier M.C. Thibaud	77,000	13.50%	\$ 16.36	6/1/16	792,231	2,007,669

- The stock options awarded vest as to all of the shares covered by each award on the third anniversary of the date of grant, provided that the grantee's employment has not been terminated, except that pursuant to the terms of change in control severance agreements between the Company and each of the named executive officers, all of such options will vest immediately in the case of a change in control of the Company.
- The exercise price is equal to the closing price of our common stock on the Nasdaq National Market on June 1, 2006.

The following table shows stock option exercises by the named executive officers during the last fiscal year, including the aggregate value realized upon exercise. This represents the excess of the fair market value, at the time of exercise, of the common stock acquired at exercise over the exercise price of the options. In addition, the table includes the number of shares underlying both exercisable and unexercisable stock options at the end of the last fiscal year. The table also shows the value of "in-the-money" options, which represents the positive spread, if any, between the exercise prices of stock options held by each named executive officer and the closing price (\$ _____) of our common stock on the Nasdaq National Market on June 30, 2006.

20

Aggregated Option Exercises in Last Fiscal Year and Fiscal Year-End Option Values

Name	Shares Acquired on Exercise (#)	Value Realized (\$)	Number of Securities Underlying Unexercised Options at Fiscal Year-End		Values of Unexercised In-the-Money Options at Fiscal Year-End \$(1)	
			Exercisable	Unexercisable	Exercisable	Unexercisable
James R. Bertelli	107,557	\$ 230,400	278,500	122,500	\$	\$
Robert E. Hult	—	—	50,000	112,000		
Marcelo G. Lima	—	—	10,250	85,750		
Craig Lund	19,600	189,095	67,280	83,500		
Didier M.C. Thibaud	—	—	86,940	117,000		

Change in Control Arrangements

We have entered into agreements with each named executive officer providing for certain benefits in the event of a change in control of the Company. A change in control includes, among other events and subject to certain exceptions, the acquisition by any person of beneficial ownership of 50% or more of our outstanding common stock. If a tender offer or exchange offer is made for more than 50% of our outstanding common stock, the executive has agreed not to leave our employ, except in the case of disability or retirement and certain other circumstances, and to continue to render services to the Company until such offer has been abandoned or terminated or a change in control has occurred.

If the executive is employed by the Company upon the occurrence of a change in control, vesting of all his then outstanding stock options and other stock-based awards immediately accelerates and all such awards become exercisable or non-forfeitable.

If, within 12 months after a change in control of the Company, the executive's employment is terminated (1) by us other than for cause or disability (as those terms are defined in the agreement) or (2) by the executive for good reason (as defined in the agreement), we have agreed to pay the executive, in addition to salary, benefits and awards accrued through the date of termination, an amount equal to 1 times the sum of the executive's then current annualized base salary and bonus target under our annual executive bonus plan (including the cash component of the LTIP). In addition, we have agreed to pay the cost of providing the executive with outplacement services up to a maximum of \$30,000. We have also agreed to provide the executive with medical and dental insurance benefits up to 18 months following such termination on the same basis as though the executive had remained an active employee. If the executive is party to an employment agreement with the Company providing for change in control payments or benefits, the executive must elect to receive either the benefits payable under that other agreement or the benefits payable under the change in control agreement, but not both.

Each agreement provides for a reduction of payments and benefits payable under the agreement to a level where the executive would not be subject to the excise tax pursuant to section 4999 of the Code, but only if such reduction would put the executive in a better after-tax position than if the payments and benefits were paid in full.

Each agreement continues in effect through June 30, 2009, subject to automatic one-year extensions thereafter unless notice is given of our or the executive's intention not to extend the term of the agreement; provided, however, that the agreement continues in effect for 12 months following a change in control that occurs during the term of the agreement. Except as otherwise provided in the agreement, we and each executive may terminate the executive's employment at any time. Each agreement has no further force and effect if either party terminates the executive's employment before a change in control, except that any such termination by us without cause or by the executive for good reason during a "potential change in control period" (as defined in the agreement) will entitle the executive to the benefits under the agreement described above (other than the accelerated vesting of stock awards).

21

DIRECTORS' COMPENSATION

How are the directors compensated?

Directors who are also employees of the Company receive no additional compensation for serving on the Board of Directors.

Each non-employee director receives an annual retainer of \$16,000, plus an additional \$2,500 for each Board meeting attended, as well as reimbursement for reasonable expenses incurred in connection with attendance at Board and committee meetings. Non-employee directors do not receive the additional payment for telephonic meetings that cover limited subject matter and are relatively brief in duration. In addition, the lead independent director and the chairmen of the audit and compensation committees each receives an additional annual retainer of \$9,000, and the chairman of the nominating and governance committee receives an additional annual retainer of \$5,000. Other members of the audit and compensation committees receive an additional annual retainer of \$7,500, and other members of the nominating and governance committee receive an additional annual retainer of \$3,000. All of these retainers are payable in quarterly installments.

New directors are granted options to purchase 15,000 shares of common stock at the first meeting of the Board following their election or at the meeting at which they are elected if elected by the Board between shareholder meetings. These grants vest as to 50% of the shares covered by the award on each of the first two anniversaries of the date of grant, and expire ten years after the date of grant. The directors may also receive annual stock option awards at the discretion of the Compensation Committee.

How were the directors compensated for fiscal year 2006?

The cash compensation paid to the members of our Board of Directors in their capacity as such with respect to fiscal year 2006 was as follows:

<u>Director</u>	<u>Cash Compensation</u>
Dr. Gordon B. Baty	\$ 54,000
Dr. Albert P. Belle Isle	56,000
George W. Chamillard	57,125
Russell K. Johnsen	60,000
Sherman N. Mullin	51,875
Lee C. Steele	52,500
Dr. Richard P. Wishner	51,000

In addition to cash compensation, each non-employee director was also granted stock options under the 2005 Plan during fiscal year 2006. On February 20, 2006, each non-employee director was granted an option to purchase 12,000 shares of common stock at an exercise price of \$17.25 per share. These grants vest as to 50% of the shares covered by the award on the date of grant and 50% on the first anniversary of the date of grant, and expire ten years after the date of grant. All or a portion of such awards will immediately vest upon the occurrence of a change in control of the Company.

COMPENSATION COMMITTEE INTERLOCKS AND INSIDER PARTICIPATION

George Chamillard, Russell K. Johnsen, Sherman N. Mullin and Dr. Richard P. Wishner served on the Compensation Committee of our Board of Directors throughout fiscal year 2006. No member of the Compensation Committee was an officer or employee of the Company or any of its subsidiaries during

fiscal year 2006 or had any business relationship or affiliation with the Company or any of its subsidiaries (other than his service as a director).

SHAREHOLDER PROPOSALS FOR THE 2006 ANNUAL MEETING

A special meeting in lieu of an annual meeting of shareholders (the "2006 Annual Meeting") will be held on November 13, 2006, at the offices of Goodwin Procter LLP, 53 State Street, Boston, Massachusetts 02109. Under regulations adopted by the SEC, any shareholder proposal submitted for inclusion in the Company's proxy statement relating to the 2006 Annual Meeting must have been received at our principal executive offices on or before June 16, 2006.

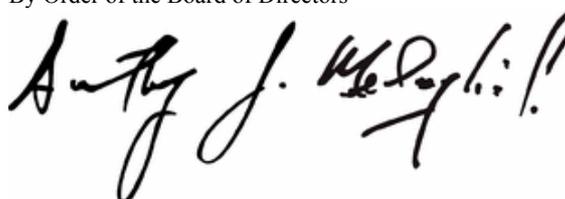
In addition to the SEC requirements regarding shareholder proposals, our by-laws contain provisions regarding matters to be brought before shareholder meetings. If shareholder proposals, including proposals relating to the election of directors, are to be considered at the 2006 Annual Meeting, notice of them, whether or not they are included in the Company's proxy statement and form of proxy, must be given by personal delivery or by United States mail, postage prepaid, to the Corporate Secretary on or before August 5, 2006. The notice must include the information set forth in our by-laws. Proxies solicited by the Board will confer discretionary voting authority with respect to these proposals, subject to SEC rules governing the exercise of this authority.

It is suggested that any shareholder proposal be submitted by certified mail, return receipt requested.

OTHER MATTERS

No other business may be presented at the meeting.

By Order of the Board of Directors



ANTHONY J. MEDAGLIA, JR., *Secretary*

Chelmsford, Massachusetts
July , 2006

MR A SAMPLE
DESIGNATION (IF ANY)
ADD 1
ADD 2
ADD 3
ADD 4
ADD 5
ADD 6

Mark this box with an X if you have made changes to your name or address details above.

Special Meeting Proxy Card

A Issues

The Board of Directors recommends a vote FOR the following proposal.

	For	Against	Abstain
1. To approve the proposed stock option exchange program and related amendment to the 2005 Stock Incentive Plan described in the proxy statement.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Mark here if you plan to attend the meeting

Mark this box with an X if you have made comments below.

B Authorized Signatures - Sign Here - This section must be completed for your instructions to be executed.

The undersigned hereby acknowledge(s) receipt of a copy of the accompanying Notice of Special Meeting of Shareholders and the Proxy Statement with respect thereto and hereby revoke(s) any proxy or proxies heretofore given.

Please sign exactly as your name(s) appear(s) on this proxy card. When shares are held by joint tenants, both should sign. When signing as attorney, executor, administrator, trustee or guardian, please give full title as such. If a corporation, please sign in full corporate name by President or other authorized officer. If a partnership, please sign in partnership name by authorized person.

Signature 1 - Please keep signature within the box

Signature 2 - Please keep signature within the box

Date (mm/dd/yyyy)

/ /

Proxy - Mercury Computer Systems, Inc.

**199 RIVERNECK ROAD,
CHELMSFORD, MASSACHUSETTS 01824**

THIS PROXY IS SOLICITED ON BEHALF OF THE BOARD OF DIRECTORS

The undersigned hereby appoints James R. Bertelli, Robert E. Hult and Anthony J. Medaglia, Jr., and each of them singly, with full power of substitution, proxies to represent the undersigned at the Special Meeting of Shareholders of Mercury Computer Systems, Inc. to be held on August , 2006 at 10:00 a.m., local time, at the offices of Goodwin Procter LLP, 53 State Street, Boston, Massachusetts 02109, and at any adjournments or postponements thereof, to vote in the name and place of the undersigned, with all powers which the undersigned would possess if personally present, upon the proposal set forth on the reverse side of this proxy card.

THIS PROXY WHEN PROPERLY EXECUTED WILL BE VOTED AS SPECIFIED. IF NO SPECIFICATION IS MADE, THE SHARES REPRESENTED WILL BE VOTED FOR THE APPROVAL OF THE PROPOSED STOCK OPTION EXCHANGE PROGRAM AND RELATED AMENDMENT TO THE 2005 STOCK INCENTIVE PLAN DESCRIBED IN THE PROXY STATEMENT.

PLEASE VOTE, DATE AND SIGN THIS PROXY IN THE SPACE PROVIDED AND RETURN IT IN THE ENCLOSED ENVELOPE, WHETHER OR NOT YOU EXPECT TO ATTEND THE MEETING IN PERSON.

Dear Shareholder:

Please take note of the important information enclosed with this proxy card. There is an important issue related to your company that requires your immediate attention and approval. This issue is discussed in the enclosed proxy materials.

Your vote counts, and you are strongly encouraged to exercise your right to vote your shares.

Please mark the appropriate box on this proxy card to indicate how your shares will be voted. Then sign the card, and return your proxy vote in the enclosed postage paid envelope.

Your vote must be received prior to the Special Meeting of Shareholders on August , 2006.

Thank you in advance for your prompt consideration of this matter.

Sincerely,

Mercury Computer Systems, Inc.
