Dear Stockholder:

Mercury Computer Systems, Inc. (the "Corporation") will hold a Special Meeting of Stockholders (the "Meeting") in lieu of the 1998 Annual Meeting of Stockholders on October 27, 1998 at the offices of Hutchins, Wheeler & Dittmar, A Professional Corporation, 101 Federal Street, Boston, Massachusetts. We look forward to your attending either in person or by proxy. The Notice of Meeting, the Proxy Statement and the Proxy Card from the Board of Directors are enclosed. These materials provide further information concerning the Meeting.
At this year's Meeting, the agenda includes the election of Class I Directors and a proposal to approve the Corporation's 1998 Stock Option Plan for Non-Employee Directors. The Board of Directors recommends that you vote FOR the election of the slate of nominees for directors, and FOR approval of the Corporation's 1998 Stock Option Plan for Non-Employee Directors.

Please refer to the enclosed Proxy Statement for detailed information on each of these proposals. If you have any further questions concerning the Meeting or any of the proposals, please feel free to contact the Corporation at (978) 256-1300.

Sincerely yours,

[signature of James R. Berelli]

James R. Berelli
President and Chief Executive Officer

MERCURY COMPUTER SYSTEMS, INC.

NOTICE OF SPECIAL MEETING OF STOCKHOLDERS
IN LIEU OF THE 1998 ANNUAL MEETING OF STOCKHOLDERS

OCTOBER 27, 1998

To the Stockholders:

A Special Meeting of the Stockholders of MERCURY COMPUTER SYSTEMS, INC. in lieu of the 1998 Annual Meeting of Stockholders will be held on Tuesday, October 27, 1998, at 2:00 p.m. at the offices of Hutchins, Wheeler & Dittmar, A Professional Corporation, Suite 3101, 101 Federal Street, Boston, Massachusetts, for the following purposes:

1. To elect Dr. Albert P. Belle Isle as a Director for a term of three years, as more fully described in the accompanying Proxy Statement.

2. To elect Mr. Melvin Sallen as a Director for a term of three years, as more fully described in the accompanying Proxy Statement.


4. To consider and act upon any other business which may properly come before the meeting.

The Board of Directors has fixed the close of business on August 28, 1998, as the record date for the meeting. All stockholders of record on that date are entitled to notice of and to vote at the meeting.

PLEASE COMPLETE AND RETURN THE ENCLOSED PROXY IN THE ENVELOPE PROVIDED WHETHER OR NOT YOU INTEND TO BE PRESENT AT THE MEETING IN PERSON.

By order of the Board of Directors

[signature of Anthony J. Medaglia, Jr.]

Anthony J. Medaglia, Jr., Clerk

Chelmsford, Massachusetts
September 25, 1998
This Proxy Statement is furnished in connection with the solicitation of proxies by the Board of Directors of Mercury Computer Systems, Inc. (the "Corporation") for use at the Special Meeting of Stockholders in lieu of the 1998 Annual Meeting of Stockholders to be held on Tuesday, October 27, 1998, at the time and place set forth in the notice of the meeting, and at any adjournments thereof (the "Meeting"). The approximate date on which this Proxy Statement and form of proxy are first being sent to stockholders is September 25, 1998.

VOTING AND REVOCABILITY OF PROXIES

If the enclosed proxy is properly executed and is received prior to the Meeting, it will be voted in the manner directed by the stockholder. If no instructions are specified with respect to any particular matter to be acted upon, proxies will be voted in favor thereof. Any person giving the enclosed form of proxy has the power to revoke it by voting in person at the meeting, or by giving written notice of revocation to the Clerk of the Corporation any time before the proxy is exercised.

The holders of a majority in interest of all Common Stock issued, outstanding and entitled to vote are required to be present in person or be represented by proxy at the meeting in order to constitute a quorum for the transaction of business. The election of the nominees for Director will be decided by plurality vote. Both abstentions and broker "non-votes" are counted as present for the purposes of determining the existence of a quorum for the transaction of business. However, for purposes of determining the number of shares voting on a particular proposal, abstentions and broker "non-votes" are not counted as votes cast or shares voting.

The Corporation will bear the cost of the solicitation. It is expected that the solicitation will be made primarily by mail, but regular employees or representatives of the Corporation (none of whom will receive any extra compensation for their activities) may also solicit proxies by telephone, telegraph and in person and arrange for brokerage houses and other custodians, nominees, and fiduciaries to send proxies and proxy materials to their principals at the expense of the Corporation.

The Corporation's principal executive offices are located at 199 Riverneck Road, Chelmsford, Massachusetts 01824, telephone number (978) 256-1300.

RECORD DATE AND VOTING SECURITIES

Only stockholders of record at the close of business on August 28, 1998 are entitled to notice of and to vote at the meeting. On that date the Corporation had outstanding and entitled to vote 10,035,333 shares of Common Stock, par value $.01 per share. Each outstanding share of the Corporation's Common Stock entitles the record holder to one vote.

ELECTION OF DIRECTORS

Pursuant to Massachusetts law, the Board of Directors is divided into three classes, with each class as nearly equal in number as possible. Presently, the Board of Directors consists of six members, with Dr. Albert Belle Isle and Mr. Melvin Sallen serving as Class I Directors; Dr. Gordon Baty and Mr. Sherman Mullin serving as Class II Directors; and Mr. James Bertelli and Mr. R. Schorr Berman serving as Class III Directors. The initial terms of the Class I, Class II, and Class III Directors expire in 1998, 1999, and 2000, respectively. Following expiration of its respective initial term, each class is then elected for a subsequent three-year term.

It is proposed that the Class I nominees listed below, whose terms expire at this meeting, be elected to serve a term of three years and until their successors are duly elected and qualified or until they sooner die, resign or are removed.

The persons named in the accompanying proxy will vote, unless authority is withheld, for the election of the nominees named below. If such nominees should become unavailable for election, which is not anticipated, the persons named in the accompanying proxy will vote for such substitute as the Board of Directors may recommend. The nominees are not related to any Executive Officer of the Corporation or its subsidiaries.
<table>
<thead>
<tr>
<th>NAME OF NOMINEE</th>
<th>AGE</th>
<th>YEAR FIRST ELECTED AS DIRECTOR</th>
<th>POSITION WITH THE CORPORATION OR PRINCIPAL OCCUPATION DURING PAST FIVE YEARS</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOMINATED FOR A TERM ENDING IN 2001:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dr. Albert P. Belle Isle</td>
<td>55</td>
<td>1986</td>
<td>Dr. Belle Isle is an independent investor in technology-based companies, was President of Custom Silicon, Inc., a semiconductor company, and has also served as a Vice President of Wang Laboratories, Inc. and in various technical and business management positions during fifteen years with the General Electric Company.</td>
</tr>
<tr>
<td>Melvin Sallen</td>
<td>70</td>
<td>1990</td>
<td>Since 1991, Mr. Sallen has served as a consultant to the Corporation in the area of Japanese Strategies and Sales. Mr. Sallen served as Senior Vice President of Analog Devices, Inc. from 1966 through 1992. Since 1992, Mr. Sallen has served as President of Komon International, Inc., an international consulting company. Mr. Sallen is also a director of Tech On Line, Inc. and Copley Controls Corporation.</td>
</tr>
<tr>
<td>SERVING A TERM ENDING IN 1999:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dr. Gordon B. Baty</td>
<td>59</td>
<td>1983</td>
<td>Dr. Baty has been a partner of First Stage Capital, Limited Partnership, a venture capital firm, since 1986. Dr. Baty was the founder and Chief Executive Officer of Icon Corporation, Context Corporation, and Wormser Engineering, Inc. Dr. Baty is also a Director of Novitron International, Inc. and numerous private companies.</td>
</tr>
<tr>
<td>Sherman N. Mullin</td>
<td>62</td>
<td>1994</td>
<td>Mr. Mullin served as President of Lockheed Advanced Development Co., a defense contractor, from 1990 through 1994. Mr. Mullin currently serves as an ad-hoc advisor to the U.S. Air Force Scientific Advisory Board.</td>
</tr>
<tr>
<td>SERVING A TERM ENDING IN 2000:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>James R. Bertelli</td>
<td>58</td>
<td>1981</td>
<td>Mr. Bertelli co-founded the Corporation in 1981, and has served as the Corporation's President, Chief Executive Officer, and a Director since that time. Prior to founding the Corporation, Mr. Bertelli founded a manufacturer's representative organization after a brief period at Analogic Corporation in sales management positions. Prior to that, Mr. Bertelli served as a marketing manager for Digital Equipment Corporation's telephone industry</td>
</tr>
</tbody>
</table>
products group. After a tour of duty in the Army Signal Corps, Mr. Bertelli began his high-tech career with RCA Corporation as a computer systems analyst, and later moved into computer sales with RCA and Univac.

Mr. Bertelli is President and Chief Executive Officer of MDT Advisors, Inc., a venture capital firm. Mr. Bertelli is also a director of Arch Communications Group, Inc. and numerous private companies.

INFORMATION CONCERNING THE BOARD OF DIRECTORS

During fiscal year 1998, there were eleven meetings of the Board of Directors of the Corporation, three meetings of the Audit Committee (see below) and fourteen meetings of the Compensation Committee (see below). All of the Directors attended at least 75% of the aggregate of (i) the total number of meetings of the Board of Directors and (ii) the total number of meetings held by committees of the Board of Directors on which they served. The Board of Directors does not have a nominating committee. Effective July 1, 1998, each Director receives cash compensation in the amount of $9,000 for the fiscal year, paid quarterly, plus an additional $2,000 for each meeting attended, as well as reimbursement for reasonable expenses incurred in connection with attendance at Board and committee meetings. As well, committee members and the committee chairman receive an annual retainer of $1,000 and $1,750, respectively, paid quarterly, as well as an additional $300 for attending a meeting not held on the same day as a meeting of the Board of Directors. In addition to cash compensation, Directors are also granted options pursuant to the 1993 Stock Option Plan for Non-Employee Directors and, subject to stockholder approval of the 1998 Stock Option Plan for Non-Employee Directors, will be granted options pursuant to such Plan commencing on September 30, 1998.

The Board of Directors has a standing Audit Committee and Compensation Committee. The members of the Audit Committee are Dr. Baty, Dr. Belle Isle and Mr. Berman. The Audit Committee reviews the scope of the Corporation's engagement of its independent public accountant and their reports. The Audit Committee also meets with the financial staff of the Corporation to review accounting procedures and reports. The Compensation Committee is comprised of Dr. Baty and Messrs. Berman and Sallen. The Compensation Committee is authorized to review and make recommendations to the Board of Directors regarding the salaries and bonuses to be paid executive officers and to administer the Corporation's various stock option and stock purchase plans.

COMPENSATION COMMITTEE INTERLOCKS AND INSIDER PARTICIPATION

During fiscal year 1998, Dr. Baty and Messrs. Berman and Sallen served as the Compensation Committee of the Corporation's Board of Directors. During fiscal year 1998, the Corporation had outstanding loans of (i) $200,000 to James R. Bertelli, President of the Corporation, and (ii) $125,000 to Dr. Albert Belle Isle, a Director of the Corporation. Both loans are due September 30, 1998, are non-recourse, and currently bear interest at two percentage points above the prime rate per annum.

PRINCIPAL HOLDERS OF VOTING SECURITIES

The following table shows, as of September 1, 1998, any person who is known by the Corporation to be the beneficial owner of more than five percent of any class of voting securities of the Corporation. For purposes of this Proxy Statement, beneficial ownership is defined in accordance with Rule 13d-3 under the Securities Exchange Act of 1934 and means generally the power to vote or dispose of the securities, regardless of any economic interest therein.
<table>
<thead>
<tr>
<th>OF BENEFICIAL OWNER</th>
<th>BENEFICIAL OWNERSHIP</th>
<th>CLASS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memorial Drive Trust(1)</td>
<td>2,454,786</td>
<td>24.5%</td>
</tr>
<tr>
<td>Massachusetts Mutual Life Insurance Company(2)</td>
<td>787,500</td>
<td>7.8%</td>
</tr>
<tr>
<td>R. Schorr Berman(3)</td>
<td>2,462,104</td>
<td>24.5%</td>
</tr>
</tbody>
</table>

- ---------------

(1) The address of this beneficial owner is MDT Advisors, Inc., 125 Cambridge Park Drive, Cambridge, MA, attention: R. Schorr Berman. Shares are held of record by MD Co., a partnership organized by Memorial Drive Trust to hold securities on behalf of Memorial Drive Trust.

(2) Includes 393,500 shares held of record by MassMutual Corporate Investors. The address of these beneficial owners is 1295 State Street, Springfield, MA 01111.

(3) Includes options to purchase 4,818 shares exercisable within sixty days of September 1, 1998. Includes 2,454,786 shares owned by MD Co., as to which Mr. Berman may be deemed beneficial owner and as to which Mr. Berman disclaims beneficial ownership except to the extent of his direct pecuniary interest. Mr. Berman is President of MDT Advisors, Inc., which manages the investments of MD Co. See note (1) above.

SECURITY OWNERSHIP OF DIRECTORS AND EXECUTIVE OFFICERS

The following information is furnished as of September 1, 1998, with respect to Common Stock of the Corporation beneficially owned within the meaning of Rule 13d-3 by all Directors of the Corporation and nominees, and by all Directors and Executive Officers as a group. Unless otherwise indicated, the individuals named held sole voting and investment power over the shares listed below.

<table>
<thead>
<tr>
<th>NAME AND ADDRESS OF BENEFICIAL OWNER</th>
<th>AMOUNT AND NATURE OF BENEFICIAL OWNERSHIP</th>
<th>PERCENT OF CLASS</th>
</tr>
</thead>
<tbody>
<tr>
<td>James R. Bertelli(1)</td>
<td>455,160</td>
<td>4.5%</td>
</tr>
<tr>
<td>Donald Barry(2)</td>
<td>13,900</td>
<td>*</td>
</tr>
<tr>
<td>Vincent A. Mancuso(3)</td>
<td>5,000</td>
<td>*</td>
</tr>
<tr>
<td>G. Mead Wyman(4)</td>
<td>41,715</td>
<td>*</td>
</tr>
<tr>
<td>Gordon B. Baty(5)</td>
<td>113,875</td>
<td>1.1%</td>
</tr>
<tr>
<td>Albert P. Belle Isle(6)</td>
<td>45,818</td>
<td>*</td>
</tr>
<tr>
<td>R. Schorr Berman(7)</td>
<td>2,462,104</td>
<td>24.5%</td>
</tr>
<tr>
<td>Sherman N. Mullin(8)</td>
<td>15,353</td>
<td>*</td>
</tr>
<tr>
<td>Melvin Sallen(9)</td>
<td>26,449</td>
<td>*</td>
</tr>
<tr>
<td>All Directors and Executive Officers As a Group (9 persons)(10)</td>
<td>3,179,374</td>
<td>31.7%</td>
</tr>
</tbody>
</table>

* Less than 1.0%

(1) Includes options to purchase 35,360 shares exercisable within sixty days of September 1, 1998.

(2) Includes options to purchase 12,900 shares exercisable within sixty days of September 1, 1998.

(3) Includes options to purchase 5,000 shares exercisable within sixty days of September 1, 1998.

(4) Includes options to purchase 5,715 shares exercisable within sixty days of September 1, 1998.
Includes options to purchase 5,450 shares exercisable within sixty days of September 1, 1998.

Includes options to purchase 4,818 shares exercisable within sixty days of September 1, 1998.

Includes options to purchase 4,818 shares exercisable within sixty days of September 1, 1998. Also includes 2,454,786 shares owned by MD Co., as to which Mr. Berman may be deemed beneficial owner and as to which Mr. Berman disclaims beneficial ownership except to the extent of his direct pecuniary interest. Mr. Berman is President of MDT Advisors, Inc., which manages the investments of MD Co. See footnote (1) in "Principal Holders of Voting Securities" above.

Includes options to purchase 14,103 shares exercisable within sixty days of September 1, 1998.

Includes options to purchase 5,399 shares exercisable within sixty days of September 1, 1998 and 2,800 shares owned by the Lois S. Sallen Trust, of which Mr. Sallen is a co-trustee and beneficiary.

Includes 93,563 shares which certain Directors and Executive Officers have the right to acquire upon the exercise of outstanding options, exercisable presently or within sixty days.

Notwithstanding anything to the contrary set forth in any of the Corporation's previous filings under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended, that might incorporate future filings, including this proxy statement, in whole or in part, the following report and the performance graph on page 8 shall not be incorporated by reference into any such filing.

Compensation Committee Report on Executive Compensation

The Compensation Committee (the "Committee") of the Board of Directors has furnished the following report on executive compensation.

The Committee administers the Corporation's stock option plans, makes annual recommendations to the full Board of Directors regarding the chief executive officer's salary, bonus, and equity-based compensation, and oversees the executive compensation program for the Corporation's other pension employees, including its executive officers. The Committee is composed of three independent directors who are not employees of the Corporation.

Compensation Philosophy

The Corporation's compensation policies for executive officers are based on the belief that the interests of executives should be closely aligned with those of the Corporation's shareholders. The compensation policies are designed to achieve the following objectives:

- Offer compensation opportunities that attract highly qualified executives, reward outstanding initiative and achievement, and retain the leadership and skills necessary to build long-term shareholder value.

- Maintain a significant portion of executives' total compensation at risk, tied to both the annual and long-term financial performance of the Corporation and the creation of shareholder value.

- Further the Corporation's short and long-term strategic goals and values by aligning compensation with business objectives and individual performance.

Executive Compensation

Compensation of executive officers other than the chief executive officer is determined by the chief executive officer. The Committee historically has obtained outside survey data regarding executive and senior level compensation and provided this data to the chief executive officer to assist him in making
compensation decisions. Compensation for executive officers is comprised of base salary, annual cash bonuses and periodic stock option grants.

Base Salary. Annual determinations of base salaries are made based on the competitive pay practices of companies in the same industry of similar size and market capitalization, the skills, performance level, and contribution to the business of the individual executives, and the needs of the Corporation.

Annual Cash Incentive Awards. The Corporation's executive officers are eligible to receive annual cash bonus awards designed to motivate executives to attain short-term and longer-term corporate and individual management goals. Award levels vary depending upon the achievement of performance criteria established by the chief executive officer. The bonus criteria for each executive officer are tailored to the achievement of financial and operational goals specifically developed for that officer's area of responsibility, as well as overall corporate performance and the attainment of other individual objectives. Consequently, there is a direct link between the compensation of the executive officers and the Corporation's performance.

Long-Term Incentives. The Committee believes that stock options are an excellent vehicle for compensating its officers and employees. The Corporation provides long-term incentives through its stock option plans, a purpose of which is to create a direct link between executive compensation and increases in shareholder value. Stock options are granted at fair market value and vest in installments, generally over five years. When determining option awards for an executive officer, the Committee considers the executive's current contribution to Corporation performance, the anticipated contribution to meeting the Corporation's long-term strategic performance goals, and industry practices and norms. Long-term incentives granted in prior years and existing levels of stock ownership are also taken into consideration. Because the receipt of value by an executive officer under a stock option is dependent upon an increase in the price of the Corporation's Common Stock, this portion of the executive's compensation is directly aligned with an increase in shareholder value.

CHIEF EXECUTIVE COMPENSATION

The chief executive officer's compensation is comprised of base salary, annual cash incentive awards and stock option grants.

In determining the base salary paid to Mr. Bertelli for the year ended June 30, 1998, the Committee considered his level of responsibility, salary increases awarded to him in the past, his experience, his potential, and compensation programs of other companies of similar size and characteristics.

Annual cash bonuses and stock option grants to Mr. Bertelli are based on the attainment of individual and corporate performance targets established at the beginning of the fiscal year. The annual cash bonus and option grants to Mr. Bertelli for the fiscal year ended June 30, 1998 reflect the achievement of predetermined targets based on the Corporation's revenue, pre-tax income, and certain non-financial goals.

Mr. Bertelli's base compensation increased 6%, from $260,000 during the fiscal year ended June 30, 1997 to $275,000 during the fiscal year ended June 30, 1998. Mr. Bertelli's cash bonus of $116,600 and grant of options to purchase 14,119 shares of common stock in respect of the fiscal year ended June 30, 1998, were based upon achievement of a significant portion of the pre-determined targets described above. Mr. Bertelli's cash bonus and stock option grant reflect increases in the Corporation's revenues and pre-tax profits of 32% and 88% respectively, from fiscal 1997 to fiscal 1998.

In 1993, the Internal Revenue Code was amended to limit the deduction a public company is permitted for compensation paid in 1994 and thereafter to the chief executive officer and to the four most highly compensated executive officers, other than the chief executive officer. Generally, amounts paid in excess of $1,000,000 to a covered executive, other than performance-based compensation, cannot be deducted. In order to qualify as performance-based compensation under the new law, certain requirements must be met, including approval of the performance measures by the stockholders. The Committee intends to consider ways to maximize deductibility of executive compensation, while retaining the discretion the Committee considers appropriate to compensate executive officers at levels commensurate with their responsibilities and
The foregoing report has been approved by all members of the Committee.

COMPENSATION COMMITTEE
Melvin J. Sallen, Chairman
Gordon B. Baty
R. Schorr Berman

PERFORMANCE GRAPH

Set forth below is a line graph comparing the cumulative total stockholder return of the Corporation's Common Stock against the cumulative total return of the Media General ("MG") Group 810 Diversified Computer Systems Index (consisting of 14 companies) and the NASDAQ Market Index for the period January 30, 1998 through June 30, 1998. The graph and table assume that $100 was invested on January 30, 1998 in each of the Corporation's Common Stock, the MG Group 810 Diversified Computer Systems Index, and the NASDAQ Market Index and that all dividends were reinvested. This data was furnished by Media General Financial Services, Richmond, Virginia.

[MERCURY COMPUTER SYSTEMS, INC. PERFORMANCE GRAPH]

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mercury Computer Systems, Inc........</td>
<td>100.00</td>
<td>144.64</td>
<td>164.29</td>
<td>157.14</td>
<td>150.00</td>
<td>138.10</td>
</tr>
<tr>
<td>MG Group Index...........</td>
<td>100.00</td>
<td>107.10</td>
<td>103.25</td>
<td>116.11</td>
<td>109.77</td>
<td>108.23</td>
</tr>
<tr>
<td>NASDAQ Market Index......</td>
<td>100.00</td>
<td>109.55</td>
<td>112.72</td>
<td>115.21</td>
<td>109.28</td>
<td>116.62</td>
</tr>
</tbody>
</table>

EXECUTIVE OFFICERS

<table>
<thead>
<tr>
<th>NAME</th>
<th>AGE</th>
<th>POSITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>James R. Bertelli........</td>
<td>58</td>
<td>President, Chief Executive Officer, Director and Co-founder</td>
</tr>
<tr>
<td>G. Mead Wyman.............</td>
<td>58</td>
<td>Senior Vice President, Chief Financial Officer and Treasurer</td>
</tr>
<tr>
<td>Donald Barry..............</td>
<td>53</td>
<td>Vice President and Director of Medical Business Group</td>
</tr>
<tr>
<td>Vincent A. Mancuso.......</td>
<td>51</td>
<td>Vice President and Director of Government Electronics Group</td>
</tr>
</tbody>
</table>

MR. BERTELLI co-founded the Company in 1981, and has served as the Company's President, Chief Executive Officer and a Director since that time. For further information, see "Election of Directors."

MR. WYMAN was promoted to Senior Vice President, Chief Financial Officer and Treasurer in September 1998. From November 1996 until his promotion, he served as Vice President, Chief Financial Officer and Treasurer. Prior to joining Mercury, Mr. Wyman was Chief Financial Officer at Dataware Technologies, Inc., a software design firm, from 1992 to 1996. Previously, he was a general partner at Hambrecht and Quist Venture Partners, and was the first Chief Financial Officer at Lotus Development Corporation. Mr. Wyman also has held senior financial management positions at Prime Computer Inc. and Millipore Corporation.
DR. BARRY has been Vice President and Director of Medical Business Group of the Company since 1992. Prior to that he served as General Manager at Picker International, Inc., Chief Operating Officer at ESA, Inc., and Director of International Marketing at American Motors Corp.

MR. MANCUSO joined the Company in January 1997 as Vice President and Director of Government Electronics Group. Before joining Mercury, Mr. Mancuso was Director of Federal Sales at Siemens Pyramid Information Systems, Inc., a computer hardware firm formerly known as Pyramid Technology Corporation, from 1995 to 1996. From 1993 to 1995, he was Vice President of consulting at Federal Sources, Inc., an information services company. From 1991 to 1992, he was Vice President and General Manager at Government Technology Services, Inc., Advanced Systems Division. Mr. Mancuso served nineteen years at Hewlett Packard in various sales and marketing positions.

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## EXECUTIVE COMPENSATION

The following table sets forth all compensation awarded to, earned by or paid to the Corporation's Chief Executive Officer and each of the Corporation's three other most highly compensated executive officers (the "Named Executive Officers") for the Corporation's two most recent fiscal years ended June 30, 1998.

### SUMMARY COMPENSATION TABLE

<table>
<thead>
<tr>
<th>NAME AND PRINCIPAL POSITION</th>
<th>YEAR</th>
<th>SALARY($)</th>
<th>BONUS($)</th>
<th>OTHER ANNUAL COMPENSATION($)</th>
<th>OPTIONS UNDERLYING</th>
<th>ALL OTHER COMPENSATION($)</th>
<th>SECURITIES UNDERLYING</th>
</tr>
</thead>
<tbody>
<tr>
<td>James R. Bertelli, President and CEO</td>
<td>1998</td>
<td>$275,000</td>
<td>$116,600</td>
<td>$6,000(1)</td>
<td>$53,601</td>
<td>$28,194(2)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1997</td>
<td>$260,000</td>
<td>$112,300</td>
<td>$6,000(3)</td>
<td>22,290</td>
<td>$32,869(4)</td>
<td></td>
</tr>
<tr>
<td>G. Mead Wyman, Senior Vice President, Treasurer and CFO(5)</td>
<td>1998</td>
<td>$175,000</td>
<td>$50,620</td>
<td>--</td>
<td>--</td>
<td>$4,652(6)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1997</td>
<td>$102,000</td>
<td>$56,434</td>
<td>--</td>
<td>80,000</td>
<td>$3,529(7)</td>
<td></td>
</tr>
<tr>
<td>Donald Barry, Vice President and Director of Medical Business Group</td>
<td>1998</td>
<td>$120,000</td>
<td>$49,000</td>
<td>--</td>
<td>--</td>
<td>$3,200(8)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1997</td>
<td>$111,000</td>
<td>$64,020</td>
<td>--</td>
<td>2,000</td>
<td>$2,100(9)</td>
<td></td>
</tr>
<tr>
<td>Vincent A. Mancuso, Vice President and Director of Government Electronics Group (10)</td>
<td>1998</td>
<td>$120,000</td>
<td>$147,000</td>
<td>--</td>
<td>--</td>
<td>$3,200(11)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1997</td>
<td>$55,000</td>
<td>$75,000</td>
<td>--</td>
<td>25,000</td>
<td>$1,400(12)</td>
<td></td>
</tr>
</tbody>
</table>

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(1) Represents automobile allowance.

(2) Represents $3,200 matching contribution by the Corporation into Mr. Bertelli's 401(k) plan for the benefit of Mr. Bertelli, and a premium of $24,994 paid by the Corporation for a split dollar life insurance policy for the benefit of Mr. Bertelli.

(3) Represents automobile allowance.

(4) Represents $3,150 matching contribution by the Corporation into Mr. Bertelli's 401(k) plan for the benefit of Mr. Bertelli, and a premium of $29,719 paid by the Corporation for a split dollar life insurance policy for the benefit of Mr. Bertelli.

(5) 1997 salary was earned from November 1996, when the Corporation hired Mr. Wyman, through June 30, 1997.

(6) Represents $3,200 matching contribution by the Corporation into Mr. Wyman's 401(k) plan for the benefit of Mr. Wyman, and a premium of $1,452 paid by the Corporation for a split dollar life insurance policy for the benefit of Mr. Wyman.

(7) Represents $2,519 matching contribution by the Corporation into Mr. Wyman's 401(k) plan for the benefit of Mr. Wyman, and a premium of $1,010 paid by the Corporation for a split dollar life insurance policy for the benefit of
Mr. Wyman.

(8) Represents $3,200 matching contribution by the Corporation into Mr. Barry's 401(k) plan for the benefit of Mr. Barry.

(9) Represents $2,160 matching contribution by the Corporation into Mr. Barry's 401(k) plan for the benefit of Mr. Barry.

(10) 1997 salary was earned from January 1997, when the Corporation hired Mr. Mancuso, through June 30, 1997.

(11) Represents $3,200 matching contribution by the Corporation into Mr. Mancuso's 401(k) plan for the benefit of Mr. Mancuso.

(12) Represents $1,400 matching contribution by the Corporation into Mr. Mancuso's 401(k) plan for the benefit of Mr. Mancuso.

10

STOCK OPTION AND STOCK PURCHASE PLANS

The Corporation has in effect its 1997 Stock Option Plan, 1993 Stock Option Plan for Non-Employee Directors, 1991 Stock Option Plan, 1982 Stock Option Plan, and 1997 Employee Stock Purchase Plan (together, the "Stock Option and Purchase Plans"). The Corporation is no longer permitted to grant options under its 1982 Stock Option Plan or its 1991 Stock Option Plan; however, certain persons continue to hold options to purchase shares of common stock granted thereunder. The Compensation Committee of the Board of Directors is responsible for the administration and interpretation of the Stock Option and Purchase Plans. Copies of the Stock Option and Purchase Plans are available from the Clerk of the Corporation upon request.

OPTION GRANTS, EXERCISES AND HOLDINGS

Option Grants. The following table sets forth certain information regarding options granted to the Named Executive Officers during the year ended June 30, 1998. The Corporation did not issue any SARs during the two most recent fiscal years ended June 30, 1998.

OPTION/SAR GRANTS IN LAST FISCAL YEAR

<table>
<thead>
<tr>
<th>NAME</th>
<th>INDIVIDUAL GRANTS</th>
<th>POTENTIAL REALIZABLE VALUE AT ASSUMED ANNUAL RATES OF STOCK PRICE APPRECIATION FOR OPTION TERM (1)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NUMBER OF SECURITIES</td>
<td>PERCENT OF TOTAL</td>
</tr>
<tr>
<td>----</td>
<td>---------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>James R. Bertelli (2)....</td>
<td>8,601</td>
<td>1.8%</td>
</tr>
<tr>
<td>G. Mead Wyman............</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Donald Barry(3)..........</td>
<td>10,000</td>
<td>2.1%</td>
</tr>
<tr>
<td>Vincent A. Mancuso.......</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>

(1) In accordance with the rules of the Securities and Exchange Commission (the "Commission"), shown are the gains or "option spreads" that would exist for the respective options granted. These gains are based on the assumed rates of annual compound stock price appreciation of 5% and 10% from the date the option was granted over the full option term. These assumed annual compound rates of stock price appreciation are mandated by the rules of the Commission and do not represent the Corporation's estimate or projection of future Common Stock prices.

(2) Options to purchase 4,301 of these shares were exercisable at June 30, 1998. The remaining options vest as to 4,300 shares on September 8, 1998, and as to 45,000 shares in increments of 11,250 shares on October 20 in each of 1998, 1999, 2000, and 2001 so long as Mr. Bertelli's employment with the Corporation has not been terminated.
These options vest in increments of 2,500 shares on October 20 in each of 1998, 1999, 2000 and 2001 so long as Mr. Barry's employment with the Corporation has not been terminated.

AGGREGATED OPTION EXERCISES IN LAST FISCAL YEAR AND 6/30/98 OPTION VALUES

The following table provides information on option exercises and on the value of the named Executive Officers' unexercised options at June 30, 1998.

<table>
<thead>
<tr>
<th>NAME</th>
<th>SHARES UNDERLYING UNEXERCISED OPTIONS AT FISCAL YEAR-END</th>
<th>VALUE OF UNEXERCISED IN-THE-MONEY OPTIONS AT FISCAL YEAR-END($)(1)</th>
<th>NUMBER OF SECURITIES ACQUIRED ON EXERCISE(#)</th>
<th>VALUE REALIZED($)(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>James R. Bertelli.....</td>
<td>8,000</td>
<td>78,000</td>
<td>5,715</td>
<td>66,285</td>
</tr>
<tr>
<td>G. Mead Wyman.........</td>
<td>5,715</td>
<td>66,285</td>
<td>66,285</td>
<td>60,008</td>
</tr>
<tr>
<td>Donald Barry...........</td>
<td>10,970</td>
<td>120,815</td>
<td>120,815</td>
<td>75,185</td>
</tr>
<tr>
<td>Vincent A. Mancuso....</td>
<td>20,000</td>
<td>10,970</td>
<td>20,000</td>
<td>10,970</td>
</tr>
</tbody>
</table>


(2) Value realized on exercise represents the difference between the exercise prices of stock options exercised and the trading price of the Corporation's Common Stock on The Nasdaq National Market on the date of such exercise.

APPROVAL OF 1998 STOCK OPTION PLAN FOR NON-EMPLOYEE DIRECTORS

There will be presented at the meeting a proposal to approve the Mercury Computer Systems, Inc. 1998 Stock Option Plan for Non-Employee Directors (the "1998 Non-Employee Director Plan" ), which was adopted by the Corporation's Board of Directors on June 15, 1998. The 1998 Non-Employee Director Plan is intended to attract and retain the services of experienced and knowledgeable independent Directors who are not employees of the Corporation through continuing ownership of the Corporation's Common Stock. Under regulations of the Nasdaq Stock Market, any plan providing for the grant of options to purchase more than 25,000 shares, any of which may be granted to a Director, is to be approved by the Stockholders. The Board of Directors recommends that the Stockholders approve the 1998 Non-Employee Director Plan. The affirmative vote of the holders of at least a majority of a quorum of the Corporation's Common Stock voting in person or by proxy at the meeting will be required for such approval. Set forth below is a summary of the principal provisions of the 1998 Non-Employee Director Plan. A copy of the entire plan is available from the Clerk of the Corporation upon request.

Terms and Provisions of Options. The 1998 Non-Employee Director Plan provides for the grant of non-qualified options not intended to meet the requirements of Section 422 of the Internal Revenue Code for the purchase of the Corporation's Common Stock by each of the current non-employee Directors of the Corporation and by each other person who is duly elected as a non-employee Director of the Corporation subject to availability of shares under the 1998 Non-Employee Director Plan. The maximum number of shares for which options may be granted under the 1998 Non-Employee Director Plan is 50,000 shares, subject to adjustment for capital changes. Under the 1998 Non-Employee Director Plan, the Corporation will grant to each non-employee Director on September 30th of each year options to purchase that number of shares of Common Stock equal to 1/10 of the net income of the Corporation for the most recent fiscal year ending prior to the date of grant divided by the fair market value of a share of the Corporation's Common Stock on the first day of such fiscal year, divided by the number of non-employee Directors in office at the time of grant. Options granted under the 1998 Non-Employee Director Plan will vest equally over three years from the date of grant, with an exercise price equal to the per share fair market value of the Corporation's Common Stock on
the date of grant of the option. The closing price of the Corporation's Common Stock on the Nasdaq National Market was $13.00 on September 14, 1998.

Options granted under the 1998 Non-Employee Director Plan generally are not assignable or transferable by the optionee other than by will or by the laws of descent and distribution or pursuant to a qualified domestic relations order. The exercise price of options granted under the 1998 Non-Employee Director Plan must be paid in full, in cash or by certified check, upon exercise; provided, however, that there shall be no such exercise at any one time as to fewer than the lesser of (i) 250 shares, or (ii) all of the remaining shares then purchasable by the person exercising the option.

If the optionee ceases to be a Director of the Corporation, the option granted to such optionee may only be exercised by the optionee within one month after the date the optionee ceases to be a Director of the Corporation, unless termination as a Director was (a) by the Corporation for cause, in which case the option terminates immediately, (b) due to the optionee becoming permanently disabled, or (c) due to the death of the optionee. If the optionee ceases being a director as a result of permanent disability, then any options vested as of the date such optionee ceases being a director may be exercised by the optionee at any time within the following twelve months. In the event of the death of an optionee, any option vested as of the date of death may be exercised by the optionee's estate (or by any person who acquired the right to exercise such option by reason of the death of the optionee) at any time within twelve months of the optionee's death.

The number of shares issuable under the 1998 Non-Employee Director Plan shall be adjusted to prevent dilution in the event of any reorganization, merger, consolidation, recapitalization, reclassification, stock split, combination of shares or stock dividend.

The 1998 Non-Employee Director Plan will terminate ten years from the date on which it is approved by the stockholders, but the Board of Directors may at any time terminate, modify or amend the plan as it deems advisable.

Following approval of the 1998 Non-Employee Director Plan by the stockholders, no further options will be granted under the Corporation's 1993 Stock Option Plan for Non-Employee Directors.

TAX EFFECTS OF PLAN PARTICIPATION

Options granted under the 1998 Director Plan are intended to be non-qualified stock options. No income is recognized by the optionee on the grant of a non-qualified stock option. On the exercise by an optionee of a non-qualified option, generally the excess of the fair market value of the stock when the option is exercised over its cost to the optionee will be (a) taxable to the optionee as ordinary income and (b) generally deductible for income tax purposes by the Corporation.

The Internal Revenue Service will treat the exercise of a non-qualified stock option with already owned stock of the Corporation of the same type (i.e., common or preferred but not "Nonqualified Preferred" stock as defined in Section 351(g)(2) of the Code) as two transactions. First, there will be a tax-free exchange of the old shares for a like amount of new shares under Section 1036 of the Code, with the new shares retaining the basis and holding periods of the old shares. Second, the issuance of additional new shares (representing the spread between the fair market value of all the new shares and the option price) is taxable to the employee as ordinary income under Section 83 of the Code, as is the case with any non-qualified option. The new shares will have a basis equal to the spread between the fair market value of the new shares and the option price.

The optionee's tax basis in his stock will equal his cost for the stock plus the amount of ordinary income he had to recognize with respect to the non-qualified stock option. Accordingly, upon a subsequent disposition of stock acquired upon the exercise of a non-qualified option, the optionee will recognize short-term or long-
term capital gain or loss, depending upon the holding period of the stock equal to the difference between the amount realized upon disposition of the stock by the optionee and his basis in the stock.

OTHER MATTERS

Notice of Amendment to Corporation By-Laws Pursuant to sec.17 of the Massachusetts General Corporation Law, Chapter 156B. On April 9, 1998, the Board of Directors unanimously voted to amend the By-Laws of the Company by making the following self-explanatory additions:

1. By adding the following language after the second sentence of the first paragraph of Section 3.5:
   Both abstentions and broker non-votes are to be counted as present for the purpose of determining the existence of a quorum for the transaction of business at any meeting.

2. By adding the following language after the last sentence of the second paragraph of Section 3.5:
   For purposes of determining the number of shares voting on a particular proposal, abstentions and broker non-votes are not to be counted as votes cast or shares voting.

3. By adding the following language after the last sentence of the second paragraph of Section 3.7:
   Both abstentions and broker non-votes are to be counted as present for the purpose of determining the existence of a quorum for the transaction of business at any meeting. However, for purposes of determining the number of shares voting on a particular proposal, abstentions and broker non-votes are not to be counted as votes cast or shares voting.

Independent Public Accountants. The Board of Directors has appointed PriceWaterhouseCoopers LLP as independent auditors to examine the consolidated financial statements of the Corporation and its subsidiaries for the fiscal year ended June 30, 1999.

A representative of PriceWaterhouseCoopers LLP is expected to be present at the Meeting and will have the opportunity to make a statement if he or she so desires and to respond to appropriate questions. The engagement of PriceWaterhouseCoopers LLP was approved by the Board of Directors at the recommendation of the Audit Committee of the Board of Directors.

Section 16(a) Beneficial Ownership Reporting Compliance. Section 16(a) of the Securities Exchange Act of 1934 requires the Corporation's officers and Directors and persons beneficially owning more than 10% of the outstanding Common Stock of the Corporation to file reports of beneficial ownership and changes in beneficial ownership with the Securities and Exchange Commission ("SEC"). Officers, Directors, and greater than 10% beneficial owners of Common Stock are required by SEC regulation to furnish the Corporation with copies of all Section 16(a) forms they file.

Based solely on copies of such forms furnished as provided above, or written representations that no Forms 5 were required, the Corporation believes that during the fiscal year ended June 30, 1998, all Section 16(a) filing requirements applicable to its officers, Directors, and beneficial owners of greater than 10% of its Common Stock were complied with, except: Mr. Melvin Sallen, a Director of the Corporation, filed one late report relating to a transaction in which a trust, of which Mr. Sallen was co-trustee and a beneficiary, purchased shares of the Corporation.

Deadlines for Submission of Stockholder Proposals. Under regulations adopted by the Securities and Exchange Commission, any proposal submitted for inclusion in the Corporation's Proxy Statement relating to the Annual Meeting of Stockholders to be held in 1999 must be received at the Corporation's principal executive offices in Chelmsford, Massachusetts on or before May 14, 1999. Receipt by the Corporation of any
such proposal from a qualified stockholder in a timely manner will not ensure its inclusion in the proxy material because there are other requirements in the proxy rules for such inclusion. Stockholders interested in submitting such a proposal are advised to contact knowledgeable counsel with regards to the detailed requirements of such securities rules.

In addition to the Securities and Exchange Commission requirements regarding stockholder proposals, the Corporation's By-Laws contain provisions regarding matters to be brought before stockholder meetings. If stockholder proposals, including proposals regarding the election of Director, are to be considered at the 1999 Annual Meeting of Stockholders, notice of them whether or not they are included in the Corporation's proxy statement and form of proxy, must be given by personal delivery or by United States mail, postage prepaid, to the Clerk of the Corporation on or before August 7, 1999.

Other Matters. Management knows of no matters which may properly be and are likely to be brought before the meeting other than the matters discussed herein. However, if any other matters properly come before the meeting, the persons named in the enclosed proxy will vote in accordance with their best judgment.

The cost of this solicitation will be born by the Corporation. It is expected that the solicitation will be made primarily by mail, but regular employees or representatives of the Corporation (none of whom will receive any extra compensation for their activities) may also solicit proxies by telephone, telegraph and in person and arrange for brokerage houses and other custodians, nominees and fiduciaries to send proxies and proxy material to their principals at the expense of the Corporation.

10-K REPORT. THE CORPORATION WILL PROVIDE EACH BENEFICIAL OWNER OF ITS SECURITIES WITH A COPY OF AN ANNUAL REPORT ON FORM 10-K, INCLUDING THE FINANCIAL STATEMENTS AND SCHEDULES THERETO, REQUIRED TO BE FILED WITH THE SECURITIES AND EXCHANGE COMMISSION FOR THE CORPORATION'S MOST RECENT FISCAL YEAR, WITHOUT CHARGE, UPON RECEIPT OF A WRITTEN REQUEST FROM SUCH PERSON. SUCH REQUEST SHOULD BE SENT TO MR. G. MEAD WYMAN, CHIEF FINANCIAL OFFICER, MERCURY COMPUTER SYSTEMS, INC., 199 RIVERNECK ROAD, CHELMSFORD, MASSACHUSETTS 01824.

VOTING PROXIES

The Board of Directors recommends an affirmative vote on all proposals specified. Proxies will be voted as specified. If signed proxies are returned without specifying an affirmative or negative vote on any proposal, the shares represented by such proxies will be voted in favor of the Board of Directors' recommendations.

By order of the Board of Directors

[SIGNATURE OF ANTHONY J. MEDAGLIA, JR.]

ANTHONY J. MEDAGLIA, JR., Clerk

Chelmsford, Massachusetts
September 25, 1998
PROXY

MERCURY COMPUTER SYSTEMS, INC.

SPECIAL MEETING IN LIEU OF
ANNUAL MEETING OF STOCKHOLDERS
OCTOBER 27, 1998

The undersigned hereby appoints James R. Bertelli and Anthony J. Medaglia, Jr.,
and each of them, with full power of substitution, proxies to represent the
undersigned at the Special Meeting in Lieu of the 1998 Annual Meeting of
Stockholders of Mercury Computer Systems, Inc. to be held on October 27, 1998 at
2:00 p.m. at the offices of Hutchins, Wheeler & Dittmar, A Professional
Corporation, 101 Federal Street, Suite 3101, Boston, Massachusetts, and at any
adjournment or adjournments thereof, to vote in the name and place of the
undersigned, with all powers which the undersigned would possess if personally
present, upon such business as may properly come before the meeting including
the proposals as set forth on the reverse side of this Proxy Card.

THIS PROXY IS SOLICITED ON BEHALF OF THE BOARD OF DIRECTORS. THE BOARD
RECOMMENDS AN AFFIRMATIVE VOTE ON ALL PROPOSALS SPECIFIED. SHARES WILL BE VOTED
AS SPECIFIED. IF NO SPECIFICATION IS MADE, THE SHARES REPRESENTED WILL BE VOTED
IN FAVOR OF THE PROPOSALS.

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

SEE REVERSE SIDE
CONTINUED AND TO BE SIGNED ON REVERSE SIDE
SEE REVERSE SIDE
1. Election of Directors:
   NOMINEES: Dr. Albert P. Belle Isle and
               Mr. Melvin Sallen

   FOR            WITHHELD
   [   ]         [   ]

   MARK HERE FOR ADDRESS CHANGE AND NOTE CHANGES AT LEFT

   For both nominees except as noted above

2. Approval of the Mercury Computer Systems, Inc. 1998 Stock Option Plan for Non-Employee Directors:

   FOR        WITHHELD
   [   ]         [   ]

3. In their discretion, the proxies are authorized to vote upon such other business as may properly come before the Meeting.

   MARK HERE IF YOU PLAN TO ATTEND THE MEETING
   [   ]

   MARK HERE FOR ADDRESS CHANGE AND NOTE CHANGES AT LEFT
   [   ]

PLEASE BE SURE TO DATE AND SIGN THIS PROXY.

Please sign exactly as your name(s) appear(s) in the Proxy. 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: _________________________ Date: _________________

Signature: ____________________________ Date: ___________________