

ASLETT MARK  
Form 4  
August 20, 2010

**FORM 4**

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

OMB APPROVAL

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Check this box if no longer subject to Section 16. Form 4 or Form 5 obligations may continue. See Instruction 1(b).

**STATEMENT OF CHANGES IN BENEFICIAL OWNERSHIP OF SECURITIES**

Filed pursuant to Section 16(a) of the Securities Exchange Act of 1934, Section 17(a) of the Public Utility Holding Company Act of 1935 or Section 30(h) of the Investment Company Act of 1940

(Print or Type Responses)

1. Name and Address of Reporting Person \*  
ASLETT MARK

2. Issuer Name and Ticker or Trading Symbol  
MERCURY COMPUTER SYSTEMS INC [MRCY]

5. Relationship of Reporting Person(s) to Issuer

(Check all applicable)

(Last) (First) (Middle)  
201 RIVERNECK ROAD  
(Street)

3. Date of Earliest Transaction (Month/Day/Year)  
08/18/2010

\_\_\_\_ Director \_\_\_\_\_ 10% Owner  
 Officer (give title below) \_\_\_\_\_ Other (specify below)  
President and CEO

CHELMSFORD, MA 01824  
(City) (State) (Zip)

4. If Amendment, Date Original Filed(Month/Day/Year)

6. Individual or Joint/Group Filing(Check Applicable Line)  
 Form filed by One Reporting Person  
 Form filed by More than One Reporting Person

**Table I - Non-Derivative Securities Acquired, Disposed of, or Beneficially Owned**

| 1. Title of Security (Instr. 3) | 2. Transaction Date (Month/Day/Year) | 2A. Deemed Execution Date, if any (Month/Day/Year) | 3. Transaction Code (Instr. 8) | 4. Securities Acquired (A) or Disposed of (D) (Instr. 3, 4 and 5) | 5. Amount of Securities Beneficially Owned Following Reported Transaction(s) (Instr. 3 and 4) | 6. Ownership Form: Direct (D) or Indirect (I) (Instr. 4) | 7. Nature of Ownership: Indirect Beneficial Ownership (Instr. 4) |
|---------------------------------|--------------------------------------|--|--------------------------------|---|---|--|--|
|                                 |                                      |  | Code                           | V   | Amount (A) or (D) Price   |  |  |
| Common Stock                    | 08/18/2010                           |  | S                              |   | 13,383<br>(1)   | D  |  |
|                                 |                                      |  |                                |   | \$ 11.012   |  |  |
|                                 |                                      |  |                                |   | 300,258   | D  |  |

Reminder: Report on a separate line for each class of securities beneficially owned directly or indirectly.

**Persons who respond to the collection of information contained in this form are not required to respond unless the form displays a currently valid OMB control number.**

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**Table II - Derivative Securities Acquired, Disposed of, or Beneficially Owned (e.g., puts, calls, warrants, options, convertible securities)**

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| 1. Title of Derivative Security (Instr. 3) | 2. Conversion or Exercise Price of Derivative Security | 3. Transaction Date (Month/Day/Year) | 3A. Deemed Execution Date, if any (Month/Day/Year) | 4. Transaction Code (Instr. 8) | 5. Number of Derivative Securities Acquired (A) or Disposed of (D) (Instr. 3, 4, and 5) | 6. Date Exercisable and Expiration Date (Month/Day/Year) | 7. Title and Amount of Underlying Securities (Instr. 3 and 4) | 8. Price of Derivative Security (Instr. 5) | 9. Number of Derivative Securities Owned Following Transaction (Instr. 6) |
|--|--|--------------------------------------|--|--------------------------------|---|--|---|--|---|
|--|--|--------------------------------------|--|--------------------------------|---|--|---|--|---|

## Reporting Owners

| Reporting Owner Name / Address                            | Relationships |           |                   |       |
|---|---------------|-----------|-------------------|-------|
|   | Director      | 10% Owner | Officer           | Other |
| ASLETT MARK<br>201 RIVERNECK ROAD<br>CHELMSFORD, MA 01824 |               |           | President and CEO |       |

## Signatures

Robert E. Hult, 08/20/2010  
 Attorney-in-fact

\*\*Signature of Reporting Person Date

## Explanation of Responses:

- \* If the form is filed by more than one reporting person, *see* Instruction 4(b)(v).
  - \*\* Intentional misstatements or omissions of facts constitute Federal Criminal Violations. *See* 18 U.S.C. 1001 and 15 U.S.C. 78ff(a).
- (1) The disposition of shares was to cover the required tax withholding triggered by the vesting of restricted stock.

Note: File three copies of this Form, one of which must be manually signed. If space is insufficient, *see* Instruction 6 for procedure. Potential persons who are to respond to the collection of information contained in this form are not required to respond unless the form displays a currently valid OMB number.