

HAINES GERALD M II
 Form 3
 July 30, 2010

FORM 3 UNITED STATES SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

OMB APPROVAL

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INITIAL STATEMENT OF 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 * | | 2. Date of Event Requiring Statement | 3. Issuer Name and Ticker or Trading Symbol | |
| Â HAINES GERALD M II | | (Month/Day/Year) | MERCURY COMPUTER SYSTEMS INC [MRCY] | |
| (Last) | (First) | (Middle) | 07/28/2010 | |
| 201 RIVERNECK ROAD | | | 4. Relationship of Reporting Person(s) to Issuer | 5. If Amendment, Date Original Filed(Month/Day/Year) |
| (Street) | | | (Check all applicable) | |
| CHELMSFORD,Â MAÂ 01824 | | | <input type="checkbox"/> Director <input type="checkbox"/> 10% Owner | 6. Individual or Joint/Group Filing(Check Applicable Line) |
| (City) | (State) | (Zip) | <input checked="" type="checkbox"/> Officer <input type="checkbox"/> Other | <input checked="" type="checkbox"/> Form filed by One Reporting Person |
| | | | (give title below) (specify below) | <input type="checkbox"/> Form filed by More than One Reporting Person |
| | | | SVP, Corporate Development | |

Table I - Non-Derivative Securities Beneficially Owned

| 1. Title of Security (Instr. 4) | 2. Amount of Securities Beneficially Owned (Instr. 4) | 3. Ownership Form: Direct (D) or Indirect (I) (Instr. 5) | 4. Nature of Indirect Beneficial Ownership (Instr. 5) |
|---------------------------------|-------------------------------------------------------|----------------------------------------------------------|-------------------------------------------------------|
| Common Stock | 55,000 ⁽¹⁾ | D | Â |

Reminder: Report on a separate line for each class of securities beneficially owned directly or indirectly. SEC 1473 (7-02)

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.

Table II - Derivative Securities Beneficially Owned (e.g., puts, calls, warrants, options, convertible securities)

| 1. Title of Derivative Security (Instr. 4) | 2. Date Exercisable and Expiration Date (Month/Day/Year) | 3. Title and Amount of Securities Underlying Derivative Security (Instr. 4) | 4. Conversion or Exercise Price of Derivative Security | 5. Ownership Form of Derivative Security: Direct (D) or Indirect | 6. Nature of Indirect Beneficial Ownership (Instr. 5) |
|--------------------------------------------|----------------------------------------------------------|-----------------------------------------------------------------------------|--------------------------------------------------------|------------------------------------------------------------------|-------------------------------------------------------|
| | Date Exercisable | Expiration Date | Title | Amount or Number of | |

Shares (I)
(Instr. 5)

Reporting Owners

| Reporting Owner Name / Address | Relationships | | | |
|------------------------------------------------------------------|---------------|-----------|------------------------------------|-------|
| | Director | 10% Owner | Officer | Other |
| HAINES GERALD M II 201 RIVERNECK ROAD CHELMSFORD, MA 01824 | Å | Å | Å SVP, Corporate Development | Å |

Signatures

Gerald M. 07/30/2010
Haines II

**Signature of Reporting Person Date

Explanation of Responses:

- * If the form is filed by more than one reporting person, *see* Instruction 5(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) These restricted shares vest in four equal annual installments beginning on July 15, 2011.

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.