

**INITIAL STATEMENT OF BENEFICIAL OWNERSHIP OF SECURITIES**

OMB APPROVAL	
OMB Number:	3235-0104
Estimated average burden hours per response:	0.5

Filed pursuant to Section 16(a) of the Securities Exchange Act of 1934 or Section 30(h) of the Investment Company Act of 1940

1. Name and Address of Reporting Person* <u>OBRIEN WILLIAM K</u>  (Last) (First) (Middle) <u>199 RIVERNECK ROAD</u>  (Street) <u>CHELMSFORD MA 01844</u>  (City) (State) (Zip)	2. Date of Event Requiring Statement (Month/Day/Year) <u>11/17/2008</u>	3. Issuer Name and Ticker or Trading Symbol <u>MERCURY COMPUTER SYSTEMS INC [ MRCY ]</u>	
		4. Relationship of Reporting Person(s) to Issuer (Check all applicable) <input checked="" type="checkbox"/> Director 10% Owner Officer (give title below) Other (specify below)	5. If Amendment, Date of Original Filed (Month/Day/Year)  6. Individual or Joint/Group Filing (Check Applicable Line) <input checked="" type="checkbox"/> Form filed by One Reporting Person Form filed by More than One Reporting Person

**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)
<u>No Shares Beneficially Owned</u>	<u>0</u>	<u>D</u>	

**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: Direct (D) or Indirect (I) (Instr. 5)	6. Nature of Indirect Beneficial Ownership (Instr. 5)
	Date Exercisable	Expiration Date	Title	Amount or Number of Shares			

Explanation of Responses:

Karl D. Noone, Attorney-in-fact 11/18/2008

\*\* Signature of Reporting Person Date

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

\* 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).

Note: File three copies of this Form, one of which must be manually signed. If space is insufficient, see Instruction 6 for procedure.

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 Number.

LIMITED POWER OF ATTORNEY LIMITED POWER OF ATTORNEY  
FOR  
MERCURY COMPUTER SYSTEMS, INC.  
SECTION 16(a) FILINGS

Know all by these presents, that the undersigned hereby constitutes and appoints each of Robert E. Hult, Senior Vice-President, Chief Financial Officer and Treasurer, Karl D. Noone, Vice-President and Corporate Controller and Alex A. Van Adzin, Vice-President, General Counsel and Corporation Secretary, acting singly, the undersigned's true and lawful attorney-in-fact to:

- (1) prepare, execute in the undersigned's name and on the undersigned's behalf, and submit to the U.S. Securities and Exchange Commission (the "SEC") a Form ID, including amendments thereto, and any other documents necessary or appropriate to obtain codes and passwords enabling the undersigned to make electronic filings with the SEC of reports required by Section 16(a) of the Securities Exchange Act of 1934 or any rule or regulation of the SEC;
- (2) execute for and on behalf of the undersigned, in the undersigned's capacity as an officer, director and/or shareholder of Mercury Computer Systems, Inc. (the "Company"), Forms 3, 4 and 5, and amendments thereto, in accordance with Section 16(a) of the Securities Exchange Act of 1934, as amended (the "Exchange Act") and the rules thereunder;
- (3) do and perform any and all acts for and on behalf of the undersigned which may be necessary or desirable to complete and execute any such Form 3, 4 or 5, or amendments thereto, and timely file such form with the United States Securities and Exchange Commission (the "SEC") and any stock exchange or similar authority; and
- (4) take any other action of any type whatsoever which, in the opinion of such attorney-in-fact, may be necessary or desirable in connection with the foregoing authority, it being understood that the documents executed by each such attorney-in-fact on behalf of the undersigned pursuant to this Limited Power of Attorney shall be in such form and shall contain such terms and conditions as such attorney-in-fact may approve, provided, however, that the undersigned does not grant to each such power-of-attorney the right to engage in any transactions involving the securities of the Company on behalf of the undersigned, including without limitation, the right to purchase or sell any securities of the Company. The undersigned hereby grants to each such attorney-in-fact full power and authority to do and perform any and every act and thing whatsoever requisite, necessary, or proper to be done in the exercise of any of the rights and powers herein granted, as fully to all intents and purposes as the undersigned might or could do if personally present, with full power of substitution or revocation, hereby ratifying and confirming all that each such attorney-in-fact, or each such attorney-in-fact's substitute or substitutes (any such substitute also being referred to herein as an "attorney-in-fact"), shall lawfully do or cause to be done by virtue of this Limited Power of Attorney and the rights and powers herein granted. The undersigned acknowledges that each attorney-in-fact, in serving in such capacity at the request of the undersigned or such attorney-in-fact, is not assuming, nor is the Company assuming, any of the undersigned's responsibilities to comply with Section 16 of the Exchange Act.

The undersigned agrees that each such attorney-in-fact shall not be liable for any error of judgment or for any act done or omitted to be done or for any mistake of fact or law except for each such attorney-in-fact's own bad faith, and the undersigned agrees to indemnify and to hold each such attorney-in-fact harmless against any loss, claim, damage, liability or cost incurred on each such attorney-in-fact's part arising out of or in connection with acts undertaken or omitted to be taken as an attorney-in-fact hereunder.

This Limited Power of Attorney shall remain in full force and effect until the undersigned is no longer required to file Forms 3, 4, and 5 with respect to the undersigned's holdings of

and transactions in securities of the Company, unless earlier revoked by the undersigned in a signed writing delivered to the foregoing attorneys-in-fact.

This Limited Power of Attorney may be filed with the SEC as a confirming statement of the authority granted herein.

IN WITNESS WHEREOF, the undersigned has caused this Limited Power of Attorney to be executed as of this 15 day of November, 2008.

/s/ William K. O'Brien