

FORM 8-A

SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FOR REGISTRATION OF CERTAIN CLASSES OF SECURITIES
PURSUANT TO SECTION 12(b) OR (g) OF THE
SECURITIES EXCHANGE ACT OF 1934

MERCURY COMPUTER SYSTEMS, INC.

(Exact name of registrant as specified in its charter)

Massachusetts

04-2741391

(State of incorporation or organization)

(I.R.S. Employer ID No.)

199 Riverneck Road, Chelmsford, MA 01824

(Address of principal executive offices) (Zip Code)

Securities to be registered pursuant to Section 12(b) of the Act:

Title of each class
to be so registered

Name of each exchange on which
each class is to be registered

N/A

If this Form relates to the registration of a class of debt securities and is effective upon filing pursuant to General Instruction A(c)(1), please check the following box. []

If this Form relates to the registration of a class of debt securities and is to become effective simultaneously with the effectiveness of a concurrent registration statement under the Securities Act of 1933 pursuant to General Instructions A(c)(2), please check the following box. []

Securities to be registered pursuant to Section 12(g) of the Act:

Common Stock, par value \$.01 Per share

(Title of Class)

Item 1. Description of Registrant's Securities to be Registered.

The information set forth in the Section entitled "Description of Capital Stock" in the Company's Registration Statement on Form S-1 filed with the Securities and Exchange Commission (File No. 333-41139), as amended, including any form of the prospectus contained therein filed by the Company pursuant to Rule 424(b) under the Securities Act of 1933, as amended (the "Registration Statement"), which is incorporated herein by reference.

Item 2. Exhibits.

- a. Specimen Certificate for shares of Common Stock (Incorporated herein by reference to Exhibit 4.1 to the Registration Statement).
- b. Rights of Holders.
 - (i) Restated Articles of Organization, as amended, of Registrant, to be effective on or about the effectiveness of the Registration Statement (Incorporated herein by reference to Exhibits 3.1 and 3.3 to the Registration Statement).
 - (ii) Amended and Restated By-Laws of Registrant, currently effective (Incorporated herein by reference to Exhibit 3.2 to the Registration Statement).

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SIGNATURE

Pursuant to the requirements of Section 12 of the Securities Exchange Act of 1934, the Registrant has duly caused this Registration Statement to be signed on its behalf by the undersigned, thereto duly authorized on this 7th day of January, 1998.

Registrant:
Mercury Computer Systems, Inc.

By: /s/ James R. Bertelli

James R. Bertelli
President