

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

FORM 8-K

**CURRENT REPORT
Pursuant to Section 13 or 15(d) of the
Securities Exchange Act of 1934**

Date of Report (Date of earliest event reported): December 14, 2005

Mercury Computer Systems, Inc.

(Exact Name of Registrant as Specified in Charter)

Massachusetts
(State or Other Jurisdiction
of Incorporation)

000-23599
(Commission File Number)

04-2741391
(IRS Employer
Identification No.)

199 Riverneck Road, Chelmsford, Massachusetts
(Address of Principal Executive Offices)

01824
(Zip Code)

Registrant's telephone number, including area code: (978) 256-1300

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions (see General Instruction A.2. below):

- Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
 - Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
 - Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
 - Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))
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Item 1.01. Entry into a Material Definitive Agreement.

On December 14, 2005, the Board of Directors of Mercury Computer Systems, Inc. (the "Company") adopted a shareholder rights plan, as set forth in the Shareholder Rights Agreement, dated as of December 14, 2005, between the Company and EquiServe Trust Company, N.A., as Rights Agent (the "Rights Agreement"). The following description of the terms of the Rights Agreement does not purport to be complete and is qualified in its entirety by reference to the Rights Agreement which is included as Exhibit 2 to the Company's Registration Statement on Form 8-A filed on December 15, 2005 and is incorporated herein by reference.

Pursuant to the terms of the Rights Agreement, the Board of Directors declared a dividend distribution of one Preferred Stock Purchase Right (a "Right") for each outstanding share of Common Stock of the Company (the "Common Stock") to shareholders of record as of the close of business on December 23, 2005 (the "Record Date"). In addition, one Right will automatically attach to each share of Common Stock issued between the Record Date and the Distribution Date (as hereinafter defined). Each Right entitles the registered holder thereof to purchase from the Company a unit consisting of one one-ten-thousandth of a share (a "Unit") of Series B Junior Participating Cumulative Preferred Stock, par value \$0.01 per share, of the Company (the "Preferred Stock") at a cash exercise price of \$130.00 per Unit (the "Exercise Price"), subject to adjustment, under certain conditions specified in the Rights Agreement and summarized below.

Initially, the Rights are not exercisable and are attached to and trade with all shares of Common Stock outstanding as of, and issued subsequent to, the Record Date. The Rights will separate from the Common Stock and will become exercisable upon the earlier of (i) the close of business on the tenth calendar day following the first public announcement that a person or group of affiliated or associated persons (an "Acquiring Person") has acquired beneficial ownership of 15% or more of the outstanding shares of Common Stock, other than as a result of repurchases of stock by the Company or certain inadvertent actions by a shareholder (the date of said announcement being referred to as the "Stock Acquisition Date"), or (ii) the close of business on the tenth business day (or such later day as the Board of Directors may determine) following the commencement of a tender offer or exchange offer that could result upon its consummation in a person or group becoming the beneficial owner of 15% or more of the outstanding shares of Common Stock (the earlier of such dates being herein referred to as the "Distribution Date").

In the event that a Stock Acquisition Date occurs, proper provision will be made so that each holder of a Right (other than an Acquiring Person or its associates or affiliates, whose Rights shall become null and void) will thereafter have the right to receive upon exercise that number of Units of Preferred Stock of the Company having a market value of two times the exercise price of the Right (such right being referred to as the "Subscription Right"). In the event that, at any time following the Stock Acquisition Date, (i) the Company consolidates with, or merges with and into, any other person, and the Company is not the continuing or surviving corporation, (ii) any person consolidates with the Company, or merges with and into the Company and the Company is the continuing or surviving corporation of such merger and, in connection with such merger, all or part of the shares of Common Stock are changed into or

exchanged for stock or other securities of any other person or cash or any other property, or (iii) 50% or more of the Company's assets or earning power is sold, mortgaged or otherwise transferred, each holder of a Right (other than an Acquiring Person or its associates or affiliates, whose Rights shall become null and void) will thereafter have the right to receive, upon exercise, common stock of the acquiring company having a market value equal to two times the exercise price of the Right (such right being referred to as the "Merger Right"). The holder of a Right will continue to have the Merger Right whether or not such holder has exercised the Subscription Right. Rights that are or were beneficially owned by an Acquiring Person may (under certain circumstances specified in the Rights Agreement) become null and void.

The Rights may be redeemed in whole, but not in part, at a price of \$0.01 per Right (payable in cash, Common Stock or other consideration deemed appropriate by the Board of Directors) by the Board of Directors only until the earlier of (i) the time at which any person becomes an Acquiring Person or (ii) the expiration date of the Rights Agreement. Immediately upon the action of the Board of Directors ordering redemption of the Rights, the Rights will terminate and thereafter the only right of the holders of Rights will be to receive the redemption price.

The Rights Agreement contains a so-called "TIDE" provision, which requires that a shareholder rights plan committee of the Board of Directors of the Company shall review (not less than once every three years) whether maintaining the Rights Agreement continues to be in the best interest of the Company's shareholders.

The Rights Agreement may be amended by the Board of Directors in its sole discretion until the time at which any person becomes an Acquiring Person. After such time the Board of Directors may, subject to certain limitations set forth in the Rights Agreement, amend the Rights Agreement only to cure any ambiguity, defect or inconsistency, to shorten or lengthen any time period, or to make changes that do not adversely affect the interests of Rights holders (excluding the interests of an Acquiring Person or its associates or affiliates). In addition, the Board of Directors may at any time prior to the time at which any person becomes an Acquiring Person, amend the Rights Agreement to lower the threshold at which a person becomes an Acquiring Person to not less than the greater of (i) the sum of .001% and the largest percentage of the outstanding Common Stock then owned by any person and (ii) 10%.

Until a Right is exercised, the holder will have no rights as a shareholder of the Company (beyond those as an existing shareholder), including the right to vote or to receive dividends. While the distribution of the Rights will not be taxable to shareholders or to the Company, shareholders may, depending upon the circumstances, recognize taxable income in the event that the Rights become exercisable for Units, other securities of the Company, other consideration or for common stock of an acquiring company.

The Rights are not exercisable until the Distribution Date and will expire at the close of business on December 23, 2015 (the "Expiration Date"), unless previously redeemed or exchanged by the Company as described below.

Item 3.03. Material Modification to Rights of Security Holders.

See Item 1.01 above, which is incorporated herein by reference.

Item 5.03. Amendments to Articles of Incorporation or Bylaws; Change in Fiscal Year.

In connection with the adoption of the Rights Agreement referenced in Item 1.01 above, the Board of Directors of the Company approved Articles of Amendment to its Restated Articles of Organization classifying and designating the Preferred Stock, which Articles of Amendment were filed with the Secretary of State of the Commonwealth of Massachusetts, and became effective, on December 15, 2005. The Articles of Amendment are included as Exhibit 1 to the Company's Registration Statement on Form 8-A filed on December 15, 2005 and are incorporated herein by reference.

Item 9.01. Financial Statements and Exhibits.**(d) Exhibits.**

- Exhibit 3.1 - Articles of Amendment of Mercury Computer Systems, Inc. classifying and designating the Series B Junior Participating Cumulative Preferred Stock, filed as an exhibit to the Company's Registration Statement on Form 8-A on December 15, 2005.
- Exhibit 4.1 - Shareholder Rights Agreement, dated as of December 14, 2005, between Mercury Computer Systems, Inc. and EquiServe Trust Company, N.A., as Rights Agent, filed as an exhibit to the Company's Registration Statement on Form 8-A on December 15, 2005.
- Exhibit 99.1 - Press Release issued by Mercury Computer Systems, Inc. dated December 15, 2005.

SIGNATURE

Pursuant to the requirements of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

MERCURY COMPUTER SYSTEMS, INC.

Date: December 15, 2005

By: /s/ James R. Bertelli

Name: James R. Bertelli

Title: President and Chief Executive Officer

EXHIBIT INDEX

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FOR IMMEDIATE RELEASE

Mercury Computer Systems Adopts Shareholder Rights Plan

CHELMSFORD, Mass. — December 15, 2005 — Mercury Computer Systems, Inc. (NASDAQ: MRCY) announced today that its Board of Directors has adopted a Shareholder Rights Plan. The Shareholder Rights Plan contains a so-called “TIDE” provision, which requires that a committee of the Board of Directors of Mercury review (not less than once every three years) whether maintaining the Plan continues to be in the best interest of shareholders. The Company added that the Plan was not adopted in response to any attempt to acquire Mercury Computer Systems.

James R. Bertelli, Mercury’s President and Chief Executive Officer, stated, “The Plan, which is similar to plans adopted by many other publicly traded companies, is designed to enhance the Board’s ability to protect shareholder interests and to ensure that shareholders receive fair treatment in the event any coercive takeover attempt of Mercury Computer Systems, Inc. is made in the future. The Plan is intended to provide the Board with sufficient time to consider any and all alternatives to such an action.”

In connection with the adoption of the Shareholder Rights Plan, the Board of Directors declared a dividend distribution of one preferred stock purchase right for each outstanding share of Mercury’s common stock to shareholders of record as of the close of business on December 23, 2005. Initially, these rights will not be exercisable and will trade with the shares of Mercury’s common stock. Under the Shareholder Rights Plan, the rights generally will become exercisable if a person becomes an “acquiring person” by acquiring 15% or more of the common stock of Mercury or if a person commences a tender offer that could result in that person owning 15% or more of the common stock of Mercury. If a person becomes an “acquiring person,” each holder of a right (other than the acquiring person) would be entitled to purchase, at the then-current exercise price, such number of shares of preferred stock which are equivalent to shares of Mercury’s common stock having a value of twice the exercise price of the right. If Mercury is acquired in a merger or other business combination transaction after any such event, each holder

of a right would then be entitled to purchase, at the then-current exercise price, shares of the acquiring company's common stock having a value of twice the exercise price of the right. Additional details concerning the terms of the Shareholder Rights Plan will be outlined in a letter which will be mailed to shareholders following the December 23, 2005 record date.

About Mercury Computer Systems, Inc.

Mercury Computer Systems, Inc. (NASDAQ: MRCY) is the leading provider of high-performance embedded, real-time digital signal and image processing solutions. Mercury's solutions play a critical role in a wide range of applications, transforming sensor data to information for analysis and interpretation. In military reconnaissance and surveillance platforms the Company's systems process real-time radar, sonar, and signals intelligence data. Mercury's systems are also used in state-of-the-art medical diagnostic imaging devices including MRI, PET, and digital X-ray, and in semiconductor imaging applications including photomask generation and wafer inspection. Mercury provides advanced 3D image processing and visualization software and optimized systems to diverse end markets including life sciences, geosciences, and simulation. The Company also provides radio frequency (RF) products for enhanced communications capabilities in military and commercial applications.

Based in Chelmsford, Massachusetts, Mercury serves customers in North America, Europe and Asia through its direct sales force and a network of subsidiaries and distributors. Visit Mercury on the web at www.mc.com.

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Contact:

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