

SCHEDULE 13G

Amendment No. 2  
Mercury Computer Systems Inc  
Common Stock  
Cusip #589378108

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Item 1: Reporting Person - FMR LLC  
Item 4: Delaware  
Item 5: 0  
Item 6: 0  
Item 7: 0  
Item 8: 0  
Item 9: 0  
Item 11: 0.000%  
Item 12: HC

Cusip #589378108  
Item 1: Reporting Person - Edward C. Johnson 3d  
Item 4: United States of America  
Item 5: 0  
Item 6: 0  
Item 7: 0  
Item 8: 0  
Item 9: 0  
Item 11: 0.000%  
Item 12: IN

SCHEDULE 13G - TO BE INCLUDED IN  
STATEMENTS  
FILED PURSUANT TO RULE 13d-1(b) or 13d-2(b)

This Amendment to Schedule 13G filed by FMR LLC amends  
the statement on Schedule 13G previously filed by FMR  
Corp., the predecessor of FMR LLC.

Item 1(a). Name of Issuer:  
Mercury Computer Systems Inc

Item 1(b). Name of Issuer's Principal Executive Offices:  
199 Riverneck Road  
Chelmsford, MA 01824

Item 2(a). Name of Person Filing:  
FMR LLC

Item 2(b). Address or Principal Business Office or, if None,  
Residence:  
82 Devonshire Street, Boston,  
Massachusetts 02109

Item 2(c). Citizenship:  
Not applicable

Item 2(d). Title of Class of Securities:  
Common Stock

Item 2(e). CUSIP Number:  
589378108

Item 3. This statement is filed pursuant to Rule 13d-1(b) or 13d-2(b)  
and the person filing, FMR LLC, is a parent holding company  
in accordance with Section 240.13d-1(b)(ii)(G). (Note: See  
Item 7).

Item 4. Ownership

- (a) Amount Beneficially Owned: 0
- (b) Percent of Class: 0.000%
- (c) Number of shares as to which such person has:
- (i) sole power to vote or to direct the vote: 0
- (ii) shared power to vote or to direct the vote: 0
- (iii) sole power to dispose or to direct the disposition of: 0
- (iv) shared power to dispose or to direct the disposition of: 0

Item 5. Ownership of Five Percent or Less of a Class.

If this statement is being filed to report the fact that as of the date hereof, the reporting person has ceased to be the beneficial owner of any of the class of securities, check the following (X).

Item 6. Ownership of More than Five Percent on Behalf of Another Person.

Not applicable

Item 7. Identification and Classification of the Subsidiary Which Acquired the Security Being Reported on By the Parent Holding Company.

See attached Exhibit A.

Item 8. Identification and Classification of Members of the Group.

Not applicable.

Item 9. Notice of Dissolution of Group.

Not applicable.

Item 10. Certification.

Inasmuch as the reporting persons are no longer the beneficial owners of more than five percent of the number of shares outstanding, the reporting persons have no further reporting obligation under Section 13(d) of the Securities and Exchange Commission thereunder, and the reporting persons have no obligation to amend this Statement if any material change occurs in the facts set forth herein.

Signature

After reasonable inquiry and to the best of my knowledge and belief, I certify that the information set forth in this statement is true, complete and correct.

December 07, 2007  
Date

/s/Eric D. Roiter  
Signature

Eric D. Roiter  
Duly authorized under Power of Attorney  
dated December 30, 1997 by and on behalf of FMR Corp.  
(now known as FMR LLC) and its direct and indirect  
subsidiaries

Members of the family of Edward C. Johnson 3d, Chairman of FMR LLC, are the predominant owners, directly or through trusts, of Series B voting common shares of FMR LLC, representing 49% of the voting power of FMR LLC. The Johnson family group and all other Series B shareholders have entered into a shareholders' voting agreement under which all Series B voting common shares will be voted in accordance with the majority vote of Series B voting common shares. Accordingly, through their ownership of voting common shares and the execution of the shareholders' voting agreement, members of the Johnson family may be deemed, under the Investment Company Act of 1940, to form a controlling group with respect to FMR LLC.

SCHEDULE 13G - TO BE INCLUDED IN  
STATEMENTS

FILED PURSUANT TO RULE 13d-1(b) or 13d-2(b)  
RULE 13d-1(f)(1) AGREEMENT

The undersigned persons, on December 07, 2007, agree and consent to the joint filing on their behalf of this Schedule 13G in connection with their beneficial ownership of the Common Stock of Mercury Computer Systems Inc at November 30, 2007.

FMR LLC

By /s/ Eric D. Roiter  
Eric D. Roiter

Duly authorized under Power of Attorney dated December 30, 1997, by and on behalf of FMR Corp. (now known as FMR LLC) and its direct and indirect subsidiaries

Edward C. Johnson 3d

By /s/ Eric D. Roiter  
Eric D. Roiter

Duly authorized under Power of Attorney dated December 30, 1997, by and on behalf of Edward C. Johnson 3d