

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

SCHEDULE 13G

Under the Securities Exchange Act of 1934
(Amendment No. 1)*

MERCURY COMPUTER SYSTEMS, INC.
(Name of Issuer)

Common Stock, par value \$0.01 per share
(Title of Class of Securities)

589378108
(CUSIP Number)

December 31, 2009
(Date of Event which Requires Filing
of this Statement)

Check the appropriate box to designate the rule pursuant to which this Schedule is filed:

- Rule 13d-1(b)
 Rule 13d-1(c)
 Rule 13d-1(d)

*The remainder of this cover page shall be filled out for a reporting person's initial filing on this form with respect to the subject class of securities, and for any subsequent amendment containing information which would alter the disclosures provided in a prior cover page.

The information required on the remainder of this cover page shall not be deemed to be "filed" for the purpose of Section 18 of the Securities Exchange Act of 1934 ("Act") or otherwise subject to the liabilities of that section of the Act but shall be subject to all other provisions of the Act (however, see the Notes).

Continued on following pages
Page 1 of 14 Pages
Exhibit Index: Page 10

1 Names of Reporting Persons

SOROS FUND MANAGEMENT LLC

2 Check the Appropriate Box If a Member of a Group (See Instructions)

- a.
- b.

3 SEC Use Only**4** Citizenship or Place of Organization

DELAWARE

Number of Shares Beneficially Owned By Each Reporting Person With	5	Sole Voting Power 1,338,466
	6	Shared Voting Power 0
	7	Sole Dispositive Power 1,338,466
	8	Shared Dispositive Power 0

9 Aggregate Amount Beneficially Owned by Each Reporting Person

1,338,466

10 Check Box If the Aggregate Amount in Row (9) Excludes Certain Shares (See Instructions)**11** Percent of Class Represented By Amount in Row (9)

5.68%

12 Type of Reporting Person (See Instructions)

OO, IA

1 Names of Reporting Persons

GEORGE SOROS

2 Check the Appropriate Box If a Member of a Group (See Instructions)

a.

b.

3 SEC Use Only

4 Citizenship or Place of Organization

UNITED STATES

5 Sole Voting Power

Number of Shares 0

Beneficially Owned By Each Reporting Person 6 Shared Voting Power

1,338,466

7 Sole Dispositive Power

0

8 Shared Dispositive Power

1,338,466

9 Aggregate Amount Beneficially Owned by Each Reporting Person

1,338,466

10 Check Box If the Aggregate Amount in Row (9) Excludes Certain Shares (See Instructions)

11 Percent of Class Represented By Amount in Row (9)

5.68%

12 Type of Reporting Person (See Instructions)

IA

1 Names of Reporting Persons

ROBERT SOROS

2 Check the Appropriate Box If a Member of a Group (See Instructions)a. b. **3** SEC Use Only**4** Citizenship or Place of Organization

UNITED STATES

Number of Shares Beneficially Owned By Each Reporting Person With	5	Sole Voting Power 0
	6	Shared Voting Power 1,338,466
	7	Sole Dispositive Power 0
	8	Shared Dispositive Power 1,338,466

9 Aggregate Amount Beneficially Owned by Each Reporting Person

1,338,466

10 Check Box If the Aggregate Amount in Row (9) Excludes Certain Shares (See Instructions)**11** Percent of Class Represented By Amount in Row (9)

5.68%

12 Type of Reporting Person (See Instructions)

IA

1 Names of Reporting Persons

JONATHAN SOROS

2 Check the Appropriate Box If a Member of a Group (See Instructions)

a.

b.

3 SEC Use Only

4 Citizenship or Place of Organization

UNITED STATES

Number of Shares Beneficially Owned By Each Reporting Person With	5	Sole Voting Power 0
	6	Shared Voting Power 1,338,466
	7	Sole Dispositive Power 0
	8	Shared Dispositive Power 1,338,466

9 Aggregate Amount Beneficially Owned by Each Reporting Person

1,338,466

10 Check Box If the Aggregate Amount in Row (9) Excludes Certain
Shares (See Instructions)

11 Percent of Class Represented By Amount in Row (9)

5.68%

12 Type of Reporting Person (See Instructions)

IA

Item 1(a) Name of Issuer:

Mercury Computer Systems, Inc. (the "Issuer").

Item 1(b) Address of the Issuer's Principal Executive Offices:

201 Riverneck Road
Chelmsford, Massachusetts 01824

Item 2(a) Name of Person Filing

The Statement is filed on behalf of each of the following persons (collectively, the "Reporting Persons"):

- i) Soros Fund Management LLC ("SFM LLC");
- ii) George Soros;
- iii) Robert Soros; and
- iv) Jonathan Soros.

This statement relates to Shares (as defined herein) held for the account of Quantum Partners Ltd., a Cayman Islands exempted limited liability company ("Quantum Partners"). SFM LLC serves as principal investment manager to Quantum Partners. As such, SFM LLC has been granted investment discretion over portfolio investments, including the Shares, held for the account of Quantum Partners. George Soros serves as Chairman of SFM LLC, Robert Soros serves as Deputy Chairman of SFM LLC, and Jonathan Soros serves as President and Deputy Chairman of SFM LLC.

Item 2(b) Address of Principal Business Office or, if None, Residence:

The address of the principal business office of each of the Reporting Persons is 888 Seventh Avenue, 33rd Floor, New York, New York 10106.

Item 2(c) Citizenship:

- i) SFM LLC is a Delaware limited liability company;
- ii) George Soros is a United States citizen;
- iii) Robert Soros is a United States citizen; and
- iv) Jonathan Soros is a United States citizen.

Item 2(d) Title of Class of Securities:

Common Stock, par value \$0.01 per share (the "Shares").

Item 2(e) CUSIP Number:

589378108

Item 3. If this statement is filed pursuant to Rule 13d-1(b), or 13d-2(b) or (c), check whether the person filing is a:

This Item 3 is not applicable.

Item 4. Ownership:**Item 4(a) Amount Beneficially Owned:**

As of the date hereof, each of the Reporting Persons may be deemed to be the beneficial owner of 1,338,466 Shares.

Item 4(b) Percent of Class:

As of the date hereof, each of the Reporting Persons may be deemed to be the beneficial owner of approximately 5.68% of the total number of Shares outstanding.

Item 4(c) Number of shares as to which such person has:SFM LLC

(i)	Sole power to vote or direct the vote:	1,338,466
(ii)	Shared power to vote or to direct the vote	0
(iii)	Sole power to dispose or to direct the disposition of	1,338,466
(iv)	Shared power to dispose or to direct the disposition of	0

George Soros

(i)	Sole power to vote or direct the vote:	0
(ii)	Shared power to vote or to direct the vote	1,338,466
(iii)	Sole power to dispose or to direct the disposition of	0
(iv)	Shared power to dispose or to direct the disposition of	1,338,466

Robert Soros

(i)	Sole power to vote or direct the vote:	0
(ii)	Shared power to vote or to direct the vote	1,338,466
(iii)	Sole power to dispose or to direct the disposition of	0
(iv)	Shared power to dispose or to direct the disposition of	1,338,466

Jonathan Soros

(i)	Sole power to vote or direct the vote:	0
(ii)	Shared power to vote or to direct the vote	1,338,466
(iii)	Sole power to dispose or to direct the disposition of	0
(iv)	Shared power to dispose or to direct the disposition of	1,338,466

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

This Item 5 is not applicable.

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

The shareholders of Quantum Partners are entitled to receive, or have the power to direct, the receipt of dividends from or the proceeds of sales of the Shares held for the account of Quantum Partners, in accordance with their ownership interests in Quantum Partners.

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

This Item 7 is not applicable.

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

This Item 8 is not applicable.

Item 9. Notice of Dissolution of Group:

This Item 9 is not applicable.

Item 10. Certification:

By signing below each of the Reporting Persons certifies that, to the best of such person's knowledge and belief, the securities referred to above were not acquired and are not held for the purpose of or with the effect of changing or influencing the control of the issuer of the securities and were not acquired and are not held in connection with or as a participant in any transaction having such purpose or effect.

SIGNATURES

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

Date: February 16, 2010

SOROS FUND MANAGEMENT LLC

By: /s/ Jodye Anzalotta
Jodye Anzalotta
Assistant General Counsel

Date: February 16, 2010

GEORGE SOROS

By: /s/ Jodye Anzalotta
Jodye Anzalotta
Attorney-in-Fact

Date: February 16, 2010

ROBERT SOROS

By: /s/ Jodye Anzalotta
Jodye Anzalotta
Attorney-in-Fact

Date: February 16, 2010

JONATHAN SOROS

By: /s/ Jodye Anzalotta
Jodye Anzalotta
Attorney-in-Fact

EXHIBIT INDEX

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A. Joint Filing Agreement, dated as of February 16, 2010, by and among Soros Fund Management LLC, George Soros, Robert Soros, and Jonathan Soros	11
B. Power of Attorney, dated as of June 26, 2009, granted by George Soros in favor of Armando T. Belly, Jodye Anzalotta, Maryann Canfield, Jay Schoenfarber, Robert Soros, and David Taylor	12
C. Power of Attorney, dated as of October 3, 2007, granted by Robert Soros in favor of Armando T. Belly, Jodye Anzalotta, Maryann Canfield, Jay Schoenfarber, and David Taylor	13
D. Power of Attorney, dated as of October 3, 2007, granted by Jonathan Soros in favor of Armando T. Belly, Jodye Anzalotta, Maryann Canfield, Jay Schoenfarber, and David Taylor	14

EXHIBIT A

JOINT FILING AGREEMENT

The undersigned hereby agree that the Schedule 13G with respect to the Common Stock, par value \$0.01 per share, of Mercury Computer Systems, Inc., dated as of February 16, 2010, is, and any amendments thereto (including amendments on Schedule 13D) signed by each of the undersigned shall be, filed on behalf of each of us pursuant to and in accordance with the provisions of Rule 13d-1(k) under the Securities Exchange Act of 1934.

Date: February 16, 2010

SOROS FUND MANAGEMENT LLC

By: /s/ Jodye Anzalotta
Jodye Anzalotta
Assistant General Counsel

Date: February 16, 2010

GEORGE SOROS

By: /s/ Jodye Anzalotta
Jodye Anzalotta
Attorney-in-Fact

Date: February 16, 2010

ROBERT SOROS

By: /s/ Jodye Anzalotta
Jodye Anzalotta
Attorney-in-Fact

Date: February 16, 2010

JONATHAN SOROS

By: /s/ Jodye Anzalotta
Jodye Anzalotta
Attorney-in-Fact

EXHIBIT B**POWER OF ATTORNEY**

KNOW ALL MEN BY THESE PRESENT, that I, GEORGE SOROS, hereby make, constitute and appoint each of ARMANDO T. BELLY, JODYE ANZALOTTA, MARYANN CANFIELD, JAY SCHOENFARBER, ROBERT SOROS and DAVID TAYLOR, acting individually, as my agent and attorney-in-fact for the purpose of executing in my name, (a) in my personal capacity or (b) in my capacity as Chairman of, member of or in other capacities with Soros Fund Management LLC ("SFM LLC") and each of its affiliates or entities advised by me or SFM LLC, all documents, certificates, instruments, statements, filings and agreements ("documents") to be filed with or delivered to any foreign or domestic governmental or regulatory body or required or requested by any other person or entity pursuant to any legal or regulatory requirement relating to the acquisition, ownership, management or disposition of securities, futures contracts or other investments, and any other documents relating or ancillary thereto, including without limitation all documents relating to filings with the Commodity Futures Trading Commission and National Futures Association, the United States Securities and Exchange Commission (the "SEC") pursuant to the Securities Act of 1933 or the Securities Exchange Act of 1934 (the "Act") and the rules and regulations promulgated thereunder, including all documents relating to the beneficial ownership of securities required to be filed with the SEC pursuant to Section 13(d) or Section 16(a) of the Act and any information statements on Form 13F required to be filed with the SEC pursuant to Section 13(f) of the Act.

All past acts of these attorneys-in-fact in furtherance of the foregoing are hereby ratified and confirmed.

Execution of this power of attorney revokes that certain Power of Attorney dated as of the 16th day of June 2005 with respect to the same matters addressed above.

This power of attorney shall be valid from the date hereof until revoked by me.

IN WITNESS WHEREOF, I have executed this instrument as of the 26th day of June 2009.

GEORGE SOROS

/s/ Daniel Eule

Daniel Eule

Attorney-in-Fact for George Soros

EXHIBIT C**POWER OF ATTORNEY**

KNOW ALL MEN BY THESE PRESENT, that I, ROBERT SOROS, hereby make, constitute and appoint each of ARMANDO T. BELLY, JODYE ANZALOTTA, MARYANN CANFIELD, JAY SCHOENFARBER and DAVID TAYLOR, acting individually, as my agent and attorney-in-fact for the purpose of executing in my name, (a) in my personal capacity or (b) in my capacity as Deputy Chairman of, member of or in other capacities with Soros Fund Management LLC ("SFM LLC") and each of its affiliates or entities advised by me or SFM LLC, all documents, certificates, instruments, statements, filings and agreements ("documents") to be filed with or delivered to any foreign or domestic governmental or regulatory body or required or requested by any other person or entity pursuant to any legal or regulatory requirement relating to the acquisition, ownership, management or disposition of securities, futures contracts or other investments, and any other documents relating or ancillary thereto, including without limitation all documents relating to filings with the Commodity Futures Trading Commission and National Futures Association, the United States Securities and Exchange Commission (the "SEC") pursuant to the Securities Act of 1933 or the Securities Exchange Act of 1934 (the "Act") and the rules and regulations promulgated thereunder, including all documents relating to the beneficial ownership of securities required to be filed with the SEC pursuant to Section 13(d) or Section 16(a) of the Act and any information statements on Form 13F required to be filed with the SEC pursuant to Section 13(f) of the Act.

All past acts of these attorneys-in-fact in furtherance of the foregoing are hereby ratified and confirmed.

This power of attorney shall be valid from the date hereof until revoked by me.

IN WITNESS WHEREOF, I have executed this instrument as of the 3rd day of October 2007.

ROBERT SOROS

/s/ Robert Soros

EXHIBIT D**POWER OF ATTORNEY**

KNOW ALL MEN BY THESE PRESENT, that I, JONATHAN SOROS, hereby make, constitute and appoint each of ARMANDO T. BELLY, JODYE ANZALOTTA, MARYANN CANFIELD, JAY SCHOENFARBER and DAVID TAYLOR, acting individually, as my agent and attorney-in-fact for the purpose of executing in my name, (a) in my personal capacity or (b) in my capacity as President and Deputy Chairman of, member of or in other capacities with Soros Fund Management LLC ("SFM LLC") and each of its affiliates or entities advised by me or SFM LLC, all documents, certificates, instruments, statements, filings and agreements ("documents") to be filed with or delivered to any foreign or domestic governmental or regulatory body or required or requested by any other person or entity pursuant to any legal or regulatory requirement relating to the acquisition, ownership, management or disposition of securities, futures contracts or other investments, and any other documents relating or ancillary thereto, including without limitation all documents relating to filings with the Commodity Futures Trading Commission and National Futures Association, the United States Securities and Exchange Commission (the "SEC") pursuant to the Securities Act of 1933 or the Securities Exchange Act of 1934 (the "Act") and the rules and regulations promulgated thereunder, including all documents relating to the beneficial ownership of securities required to be filed with the SEC pursuant to Section 13(d) or Section 16(a) of the Act and any information statements on Form 13F required to be filed with the SEC pursuant to Section 13(f) of the Act.

All past acts of these attorneys-in-fact in furtherance of the foregoing are hereby ratified and confirmed.

This power of attorney shall be valid from the date hereof until revoked by me.

IN WITNESS WHEREOF, I have executed this instrument as of the 3rd day of October 2007.

JONATHAN SOROS

/s/ Jonathan Soros