UNITED STATES SECURITIES AND EXCHANGE COMMISSION **WASHINGTON, DC 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): October 20, 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

(Former Name or Former Address, if Changed Since Last Report)

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 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))

Item 2.02. Results of Operations and Financial Condition.

On October 20, 2005, Mercury Computer Systems, Inc. (the "Company") issued a press release regarding its financial results for the quarter ended September 30, 2005. The Company's press release is attached as Exhibit 99.1 to this Current Report on Form 8-K and incorporated by reference herein.

Information in this Current Report on Form 8-K and the Exhibit attached hereto shall not be deemed "filed" for purposes of Section 18 of the Securities Exchange Act of 1934 (the "Exchange Act") or otherwise subject to the liabilities of that section, nor shall it be deemed incorporated by reference in any filing under the Securities Act of 1933 or the Exchange Act, regardless of any general incorporation language in such filing.

USE OF NON-GAAP FINANCIAL MEASURES

In addition to reporting financial results in accordance with generally accepted accounting principles, or GAAP, the Company provides non-GAAP measures adjusted to exclude certain non-cash and other specified charges, which the Company believes are useful to help investors better understand its past financial performance and prospects for the future. However, the presentation of non-GAAP financial measures is not meant to be considered in isolation or as a substitute for financial information provided in accordance with GAAP. Management believes these non-GAAP financial measures assist in providing a more complete understanding of the Company's underlying operational results and trends, and management uses these measures to manage the Company's business, to evaluate its performance compared to prior periods and the marketplace, and to establish operational goals.

Item 9.01 Financial Statements and Exhibits

Exhibits The following exhibit is being furnished herewith.

99.1 Press Release, dated October 20, 2005, of Mercury Computer Systems, Inc.

SIGNATURES

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. (Registrant)

By: /s/ ALEX N. BRAVERMAN

Alex N. Braverman
Vice President, Controller and
Chief Accounting Officer

Date: October 20, 2005

EXHIBIT INDEX

Exhibit No. Description

99.1 Press Release, dated October 20, 2005, of Mercury Computer Systems, Inc.





FOR IMMEDIATE RELEASE

Mercury Computer Systems Reports First Quarter Revenues of \$67 Million

GAAP Earnings per Share of \$0.14 Non-GAAP Earnings per Share of \$0.27 59th Consecutive Quarter of Profitability Cash Flow from Operations of \$17.8 Million

CHELMSFORD, Mass. — October 20, 2005 — Mercury Computer Systems, Inc. (NASDAQ: MRCY), reported results for its first quarter ended September 30, 2005.

First quarter revenues were \$66.9 million, an increase of 21.7% over the prior year's first quarter, and a record for first quarter revenues. Cash flows from operating activities were \$17.8 million in the first quarter. Cash and marketable securities balance for the first quarter was \$170.6 million.

First quarter GAAP operating income was \$4.3 million, representing 6.4% of revenues. First quarter GAAP net income was \$3.1 million, or 4.6% of revenues. GAAP diluted earnings per share were \$0.14 for the first quarter. GAAP net income includes \$4.1 million in charges, consisting of \$2.1 million in stock-based compensation costs, \$1.5 million in amortization of purchased intangible assets, and \$0.5 million for in-process research and development charges. Excluding the impact of these charges, first quarter non-GAAP operating income was \$8.4 million, representing 12.6% of revenues. First quarter non-GAAP net income was \$6.3 million, or 9.4% of revenues. Non-GAAP diluted earnings per share were \$0.27 for the first quarter. Non-GAAP net income and earnings per share also reflect a \$1.0 million net tax impact of the foregoing charges.

– more –

199 Riverneck Road, Chelmsford, Massachusetts 01824-2820 U.S.A. 978-256-1300 • Fax 978-256-0852 • www.mc.com

Page 2

"We had strong first quarter results, particularly in light of softness in the semiconductor industry and program delays in the defense markets," said Jay Bertelli, president and chief executive officer of Mercury Computer Systems, Inc. "This quarter we continued to make progress toward achieving our strategic growth objectives, and completed the acquisitions of SoHard AG and Echotek Corporation."

Backlog

The Company's total backlog at the end of the quarter was \$92.1 million, a \$1.9 million increase over the same quarter last year. Of the current total backlog, \$83.8 million represents shipments scheduled over the next 12 months. The book-to-bill ratio was 0.74 for the quarter.

Defense

Revenues for the quarter from the Defense business were \$41.1 million, representing 61% of the Company's total revenues. Revenues were particularly strong in the radar and signals intelligence markets.

Commercial Imaging and Visualization

Revenues for the quarter from Commercial Imaging and Visualization were \$13.7 million, representing 21% of the Company's total revenues. Revenues were particularly strong in the MRI and digital X-ray markets.

Advanced Solutions

Revenues for the quarter from Advanced Solutions were \$9.3 million, representing 14% of the Company's total revenues. During the quarter, the Advanced Solutions business was adversely affected by the slowness in the semiconductor market.

Modular Products and Services

Revenues for the quarter from Modular Products and Services were \$2.8 million, representing 4% of the Company's total revenues.

Page 3

Stock Repurchase Program

At its meeting on July 25, the board of directors of Mercury authorized a share repurchase program for up to \$20 million of the Company's currently outstanding common stock. The plan is intended to offset the potential dilutive impact of the issuance of shares in connection with the Company's employee stock option and purchase plans. Along these lines, in Q1FY06 the Company repurchased 230,800 shares of its outstanding common stock at an average purchase price of \$27.07 for \$6.3 million.

Business Outlook

This section presents our current expectations and estimates, given current visibility, on our business outlook. It is possible that actual performance will differ materially from the ranges and estimates given — either on the upside or on the downside. Investors should consider all of the risks, including those listed in the Safe Harbor Statement below, with respect to these estimates, and make themselves aware of the risk factors that may impact the Company's actual performance.

On our July 28 earnings call, the Company estimated an annual revenue range for the 2006 fiscal year of \$295 to \$305 million, representing approximately 20% growth at the midpoint of the range. Based on continued sluggishness in the semiconductor industry and several large defense programs experiencing timing delays, we are currently anticipating revenues to fall into a range of \$275 to \$285 million for the 2006 fiscal year.

Based on anticipated revenues, the Company currently expects 2006 fiscal year GAAP earnings per share to be in the range of \$0.50 to \$0.55. Excluding the impact of stock-based compensation costs, amortization of purchased intangible assets and in-process research and development charges, fiscal year 2006 non-GAAP earnings per share are currently expected to be in the range of \$1.00 to \$1.05. (Full year non-GAAP estimates provided on the July 28 call only excluded stock-based compensation.)

For the second quarter of fiscal year 2006, revenues are currently expected to be in the range of \$61 to \$64 million.

Paae 4

The Company currently expects second quarter fiscal 2006 GAAP earnings per share to be approximately breakeven. Excluding the impact of stock-based compensation costs, amortization of purchased intangible assets, and in-process research and development charges, second quarter fiscal year 2006 non-GAAP earnings per share are currently expected to be in the range of \$0.08 to \$0.10.

Recent Highlights

- Mercury's first product based on the IBM® Cell BE (Broadband Engine) processor, the Dual Cell-Based Blade, was announced in October. The Dual Cell-based Blade will offer unprecedented peak performance of 400 GFLOPS, and will be available in the IBM BladeCenter platform, which integrates server, storage, and networking functionality to provide upward scalability and performance density for computing needs in a variety of applications in the industrial, medical, and military markets.
- Mercury completed the acquisition of Echotek Corporation in August for approximately \$50 million. Based in Huntsville, Alabama, Echotek is a market leader in the development of data acquisition products.
- Mercury also completed the acquisition of SoHard AG in July for approximately \$23 million. Headquartered in Fuerth, Germany, SoHard AG is a global
 market leader in the development of advanced software solutions for medical imaging systems, hardware and firmware for commercial embedded systems,
 and software intelligence applications via professional services.
- Mercury joined the board of directors of VITA, the governing body of the VMEbus International Trade Association, in October. The Company is also
 continuing its extensive involvement in the standards working groups that are actively renewing the VMEbus architecture and ecosystem and advocating
 commercial off-the-shelf (COTS) solutions for existing and emerging market applications. Mercury personnel are making vital contributions

Paae

to eight distinct VITA committees that are focused on standardizing implementations for a specific technology frontier.

- Mercury and Terra Soft Solutions®, Inc. announced in September an alliance to deliver the Mercury XR9 in a 1U and 4U rack-mount form factor. The customer solution packaging includes dual-PowerPC® 970FX-based HPC (high-performance computing) with enhanced I/O capability. Terra Soft is the leading developer of integrated Power® Architecture Linux solutions, and a Value Added Reseller (VAR) for Mercury.
- Mercury also announced in September its next-generation VME board with high-bandwidth options and 20 GFLOPS of processing power. Designed for
 vast configuration flexibility, the Momentum Series VPA-200 will combine host, signal processing, and I/O carrier functionality in a single slot, and
 provide a flexible, multi-function feature set for price-sensitive, entry-level military embedded applications.
- Mercury announced in July its alliance with inTrace GmbH to bring a highly advanced, real-time ray-tracing solution to the manufacturing and industrial markets. The worldwide (except Japan) distribution agreement is for joint distribution of inTrace's OpenRT ray-tracing software package and will enable Mercury to enhance its portfolio of visualization products.

Conference Call Information

Mercury will host a conference call Thursday, October 20, 2005 at 5:00 p.m. ET to discuss the first quarter 2006 results and review the financial and business outlook for the remainder of the year.

To listen to the conference call, dial (800) 474-8920 in the USA and Canada, and for international, dial (719) 457-2727. The conference code number is 4399183. Please call five to ten minutes prior to the scheduled start time. This call will also be broadcast live over the web at www.mc.com/investor under Financial Events.

Page 6

A replay of the call by telephone will be available from approximately 8:00 p.m. ET on Thursday, October 20 through midnight ET on Friday, October 28. To access the replay, dial (888) 203-1112 in the USA and Canada, and for international, dial (719) 457-0820. Enter access code 4399183. A replay of the webcast of the call will be available for an extended period of time on the Financial Events page of the Company's website at www.mc.com/investor.

Use of Non-GAAP (Generally Accepted Accounting Principles) Financial Measures

In addition to reporting financial results in accordance with generally accepted accounting principles, or GAAP, the Company provides non-GAAP financial measures adjusted to exclude certain non-cash and other specified charges, which the Company believes are useful to help investors better understand its past financial performance and prospects for the future. However, the presentation of non-GAAP financial measures is not meant to be considered in isolation or as a substitute for financial information provided in accordance with GAAP. Management believes these non-GAAP financial measures assist in providing a more complete understanding of the Company's underlying operational results and trends, and management uses these measures to manage the Company's business, to evaluate its performance compared to prior periods and the marketplace, and to establish operational goals. A reconciliation of GAAP to non-GAAP financial results discussed in this press release is contained in the attached exhibits.

Forward-Looking Safe Harbor Statement

This press release contains certain forward-looking statements, as that term is defined in the Private Securities Litigation Reform Act of 1995, including those relating to anticipated fiscal 2006 business performance and beyond. You can identify these statements by our use of the words "may," "will," "should," "plans," "expects," "anticipates," "continue," "estimate," "project," "intend," and similar expressions. These forward-looking statements involve risks and uncertainties that could cause actual results to differ materially from those projected or anticipated. Such risks and uncertainties include, but are not limited to, general economic and business conditions, including unforeseen weakness in the Company's markets, effects of continued geopolitical unrest and regional conflicts, competition, changes in technology, and methods of marketing, delays in completing engineering and manufacturing programs, changes in customer order patterns, changes in product mix, continued success in technological advances and delivering technological innovations, continued funding of defense programs, the timing of such funding, changes in the U.S. Government's interpretation of federal procurement rules and regulations, market acceptance of the Company's products, shortages in components, production delays due to performance quality issues with outsourced components, and inability to fully realize the expected benefits from acquisitions or delays in realizing such benefits, challenges in integrating acquired businesses, and achieving anticipated synergies, and difficulties in retaining key customers. These risks and uncertainties also include such additional risk factors as are discussed in the Company's recent filings with the U.S. Securities and Exchange Commission, including its Annual Report on Form 10-K for the fiscal year ended June 30, 2005. The Company cautions readers not to place undue reliance upon any such forward-looking statements, which speak only as of the date made. The Company undertakes no obligation to

Page 7

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.

###

Contact:
Kathy Donahue, Public Relations Manager
978-967-1126 / kdonahue@mc.com

Product and company names mentioned may be trademarks and/or registered trademarks of their respective holders.

MERCURY COMPUTER SYSTEMS, INC. UNAUDITED CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS (in thousands)

		Three months ended September 30,	
	2005	2004	
Cash flows from operating activities:			
Net income	\$ 3,072	\$ 5,098	
Depreciation and amortization	3,790	2,050	
Other and non-cash items, net	1,671	484	
Changes in operating assets and liabilities	9,250	3,541	
Net cash provided by operating activities	17,783	11,173	
Cash flows from investing activities:			
Sales (purchases) of marketable securities, net	40,832	(26,192)	
Purchases of property and equipment	(2,557)	(1,707)	
Acquisition of businesses, net of cash acquired	(67,440)		
Net cash used in investing activities	(29,165)	(27,899)	
Cash flows from financing activities:			
Proceeds from employee stock plans	1,452	867	
Purchases of common stock	(6,255)	(7,844)	
Proceeds from convertible debt offering, net	_		
Principal payments under notes payable	(208)	(178)	
Net cash used in financing activities	(5,011)	(7,155)	
Effect of exchange rate changes on cash and cash equivalents	(141)	(38)	
Net decrease in cash and cash equivalents	(16,534)	(23,919)	
Cash and cash equivalents at beginning of period	43,143	148,995	
Cash and cash equivalents at end of period	\$ 26,609	\$125,076	

MERCURY COMPUTER SYSTEMS, INC. CONSOLIDATED BALANCE SHEETS (in thousands)

	September 30, 2005	June 30, 2005
	(unaudited)	
Assets		
Current assets:		
Cash and cash equivalents	\$ 26,609	\$ 43,143
Marketable securities	88,941	131,702
Accounts receivable, net	38,784	40,033
Inventory	19,440	16,691
Deferred tax assets, net	2,664	2,664
Prepaid expenses and other current assets	5,851	7,737
Total current assets	182,289	241,970
Marketable securities	55,023	53,382
Property and equipment, net	30,617	29,484
Goodwill	90,638	37,080
Acquired intangible assets, net	29,104	5,402
Deferred tax assets, net	<u> </u>	4,481
Other assets	5,225	5,327
Total assets	\$ 392,896	\$377,126
		40.1,000
Liabilities and Stockholders' Equity		
Current liabilities:		
Accounts payable	\$ 12,541	\$ 8,627
Accrued expenses	14,083	8,091
Accrued compensation	11,959	13,965
Notes payable	853	831
Income taxes payable	3,438	3,128
Deferred revenues and customer advances	8,375	8,162
Total current liabilities	51,249	42,804
Notes payable	135,524	134,997
Deferred compensation	1,413	1,281
Other long-term liabilities	1,870	218
Total liabilities	190,056	179,300
Stockholders' equity:		
Common stock	210	210
Additional paid-in capital	12,785	10,365
Retained earnings	191,166	188,094
Accumulated other comprehensive income (loss)	(1,321)	(843)
Total stockholders' equity	202,840	197,826
Total liabilities and stockholders' equity	\$ 392,896	\$377,126

MERCURY COMPUTER SYSTEMS, INC. UNAUDITED CONSOLIDATED STATEMENTS OF INCOME (in thousands, except per share data)

Septen		nths ended nber 30, 005	Three months ended September 30, 2004	
Net revenues	\$	66,901	\$	54,982
Cost of revenues		24,519		19,464
Gross profit		42,382		35,518
Operating expenses:				
Selling, general and administrative		20,159		15,603
Research and development		15,874		11,522
Amortization of purchased intangible assets		1,520		420
In-process research and development		548		_
Total operating expenses		38,101		27,545
Income from operations		4,281		7,973
Interest income		1,569		994
Interest expense		(1,036)		(1,054)
Other income (expense), net		(5)		(189)
Income before income taxes		4,809		7,724
Income tax provision		1,737		2,626
Net income	\$	3,072	\$	5,098
National and a second			_	
Net income per share: Basic	¢.	0.15	¢	0.24
Basic	\$	0.15	\$	0.24
Diluted	\$	0.14	\$	0.22
Weighted average shares outstanding:				
Basic		20,963		21,178
Diluted		25,648		26,051

ABOVE PREPARED IN ACCORDANCE WITH GAAP

ADDITIONAL SUPPLEMENTAL INFORMATION: NON-GAAP CONSOLIDATED STATEMENTS OF INCOME (in thousands, except per share data)

(in monounas, encope per sauce auta)	Three months ended September 30, 2005	Three months ended September 30, 2004
Net revenues	\$ 66,901	\$ 54,982
Cost of revenues (a)	24,373	19,464
Gross profit	42,528	35,518
Operating expenses:		
Selling, general and administrative	18,782	15,603
Research and development	15,313	11,522
Total operating expenses (a) (b) (c)	34,095	27,125
Income from operations (a) (b) (c)	8,433	8,393
Interest income	1,569	994
Interest expense	(1,036)	(1,054)
Other income (expense), net	(5)	(189)
Income before income taxes (a) (b) (c)	8,961	8,144
Income tax provision (d) (e)	2,688	2,769
Net income	\$ 6,273	\$ 5,375
Net income per share:		
Basic	\$ 0.30	\$ 0.25
Diluted	\$ 0.27	\$ 0.23
Weighted average shares outstanding:		
Basic	20,963	21,178
Diluted	25,648	26,051
A reconciliation between net income on a GAAP basis and non-GAAP net income is as follows:		
	Three months ended September 30, 2005	Three months ended September 30, 2004
GAAP net income	\$ 3,072	\$ 5,098
(a) Stock-based compensation:		
Cost of revenues	146	_
Selling, general and administrative	1,377	_
Research and development	561	_
(b) Amortization of purchased intangible assets	1,520	420
(c) In-process research and development	548	
(d) Income tax effect (at GAAP rate)	(1,500)	(143)
(e) Reduced tax rate (excluding impact of non-GAAP items)	549 	<u> </u>
Non-GAAP net income	\$ 6,273	\$ 5,375