

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): May 28, 2008

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

N/A

(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 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))

Item 7.01. Regulation FD Disclosure.

The management of Mercury Computer Systems, Inc. ("Mercury") will present an overview of Mercury's business on May 29, 2008 at the Cowen and Company 20/20 Technology Media Telecom Conference. Attached as Exhibit 99.1 to this Current Report on Form 8-K (the "Report") is a copy of the slide presentation to be made by Mercury at the conference.

This information is being furnished pursuant to Item 7.01 of this Report and shall not be deemed to be "filed" for the purposes of Section 18 of the Securities Exchange Act of 1934, as amended, or otherwise subject to the liabilities of that section and will not be incorporated by reference into any registration statement filed by Mercury under the Securities Act of 1933, as amended, unless specifically identified as being incorporated therein by reference. This Report will not be deemed an admission as to the materiality of any information in this Report that is being disclosed pursuant to Regulation FD.

Please refer to page 2 of Exhibit 99.1 for a discussion of certain forward-looking statements included therein and the risks and uncertainties related thereto, as well as the use of non-GAAP financial measures included therein.

Item 9.01. Financial Statements and Exhibits.

(d) Exhibits.

<u>Exhibit No.</u>	<u>Description</u>
99.1	Presentation materials dated May 29, 2008.

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)

Date: May 28, 2008

By: /s/ Robert E. Hult
Robert E. Hult
Senior Vice President, Chief Financial Officer
and Treasurer

EXHIBIT INDEX

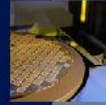
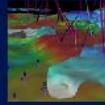
Exhibit No.

Description

99.1

Presentation materials dated May 29, 2008.

Computer Systems, Inc.
MERCURY
Challenges Drive Innovation



**Cowen and Company 20/20
Technology Media Telecom Conference
May 29, 2008**

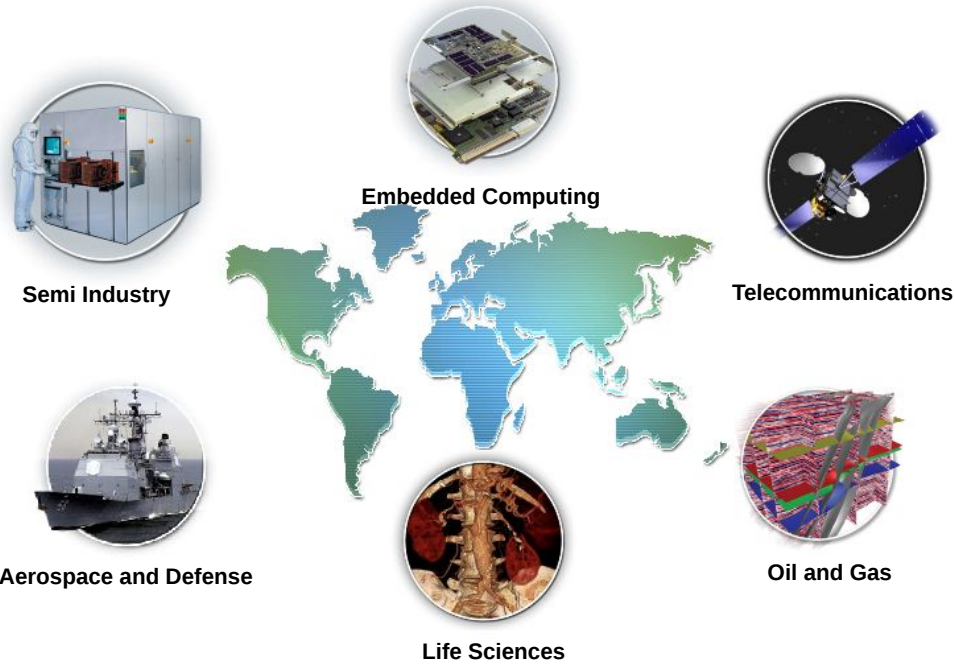
Mark Aslett, President & Chief Executive Officer
Bob Hult, SVP & Chief Financial Officer

This presentation 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 2008 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, the 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 year ended June 30, 2007. 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 update any forward-looking statement to reflect events or circumstances after the date on which such statement is made.

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

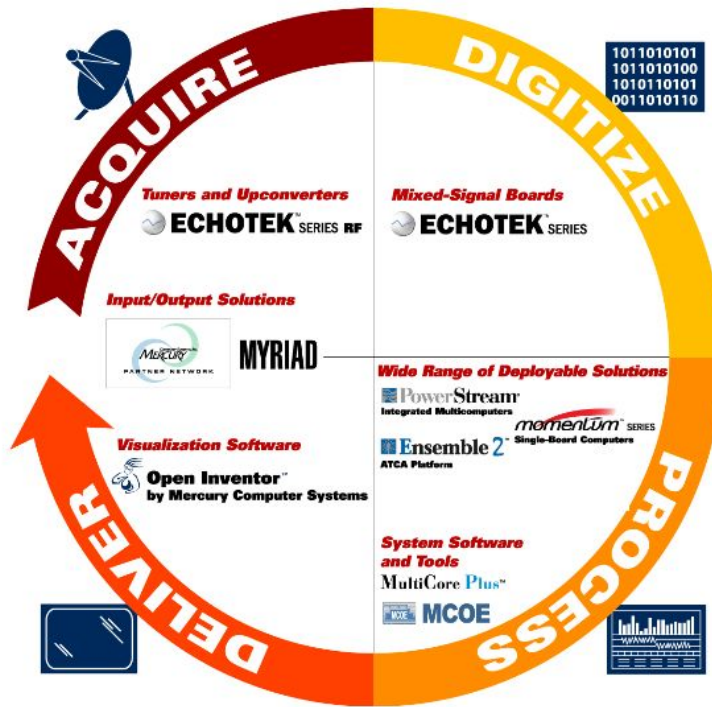
In addition to reporting financial results in accordance with generally accepted accounting principles, or GAAP, the Company provides non-GAAP financial measures adjusted to exclude certain specified charges, which the Company believes are useful to help investors better understand its past financial 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, along with their corresponding GAAP financial 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 measures discussed in this presentation is contained in the Company's Third Quarter Fiscal Year 2008 earnings release, which can be found on our website at www.mc.com/mediacenter/pressreleaseslist.aspx.

Mercury offers more than 20 years' experience in designing and delivering high-performance computing systems and software, for a broad range of image- and data-intensive applications, to customers around the world.



From RF to Visualization

- Modular boards and integrated systems
- Scalable multi core architectures
- Robust software and tools
- Open-standard COTS to custom solutions
- Ruggedized systems
- Comprehensive services
- Visualization software



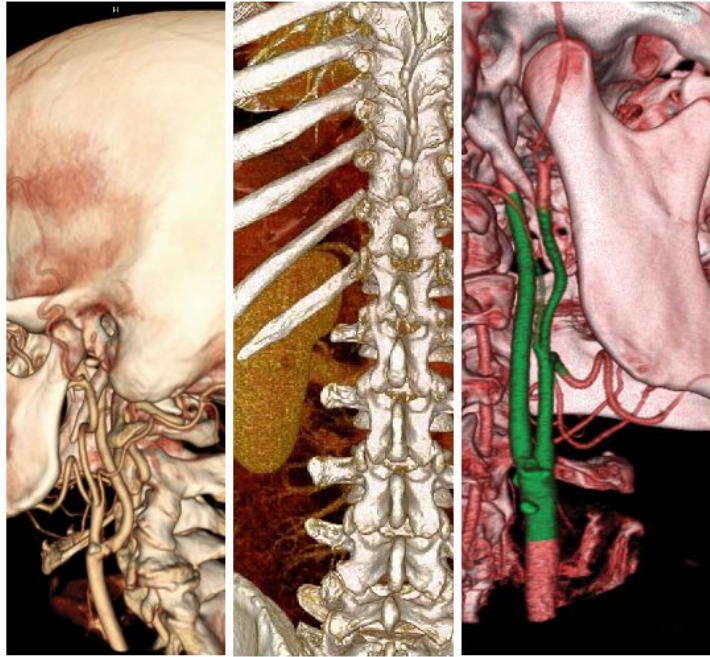
ACS focuses on specialized, high-performance computing solutions that leverage Mercury's capabilities in sensor computing, computational acceleration, and delivery of complex system-level solutions.

Example Segments

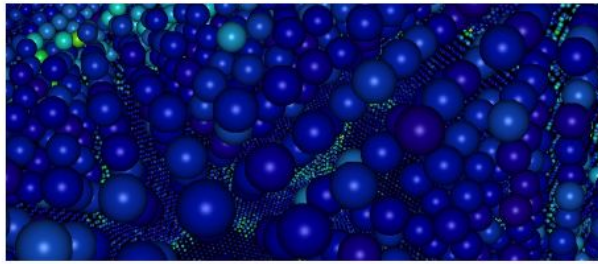
- Aerospace and defense
- Semiconductor
- Telecommunications
- Medical imaging



Mercury's wholly owned subsidiary focuses on the development and distribution of 3D visualization and PACS (picture archiving and communications system) solutions, and other 3D software solutions in the life sciences segment.

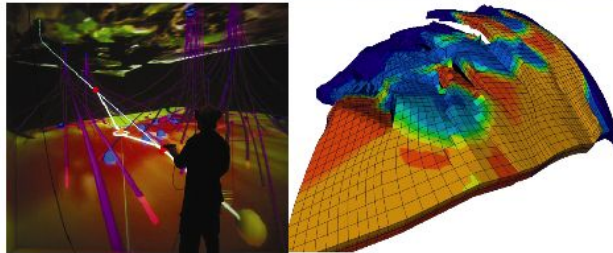


VSG focuses on the development and distribution of software developer toolkits and 3D application software for very-high volume-rendering applications.



Example Segments

- Geosciences –Oil and Gas
- Engineering and manufacturing
- Material sciences
- Other industrial and scientific domains



- Significant and pioneering investments in specialized FPGA and multi core computing architectures and software
 - We maintain ongoing relationships with silicon providers that are unique
 - Significant multi computing R&D expenditures
 - The breadth and depth of our product line for specialized computing are unrivalled
- Our approach to technical problem-solving in the specialized computing arena is proven
 - Assessment of best silicon choices available
 - Thermal/Power evaluation
 - System-level architectural design
 - Application and algorithm performance optimization
- Our work on specialized computing-related problems typically results in significant business value for our customers
 - Making their products better
 - Reducing their risk
 - Lowering their cost
 - Speeding time to market

Partial customer and partner list

SIEMENS



BAE SYSTEMS



LOCKHEED MARTIN

Raytheon



PHILIPS

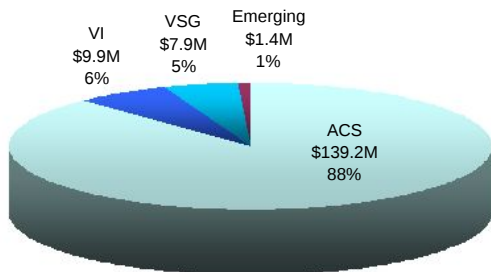


Pacific Northwest National Laboratory
Operated by Battelle for the U.S. Department of Energy

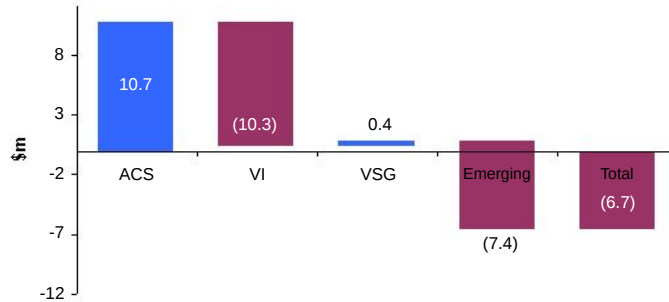


- Revenue and profitability strength in ACS business
- Other businesses eroding margin

Segment Revenue Q308 YTD



Segment Operating Profit Q308 YTD



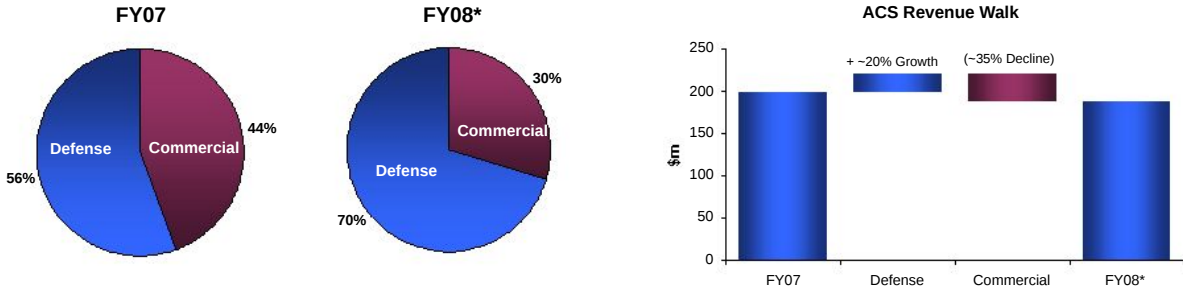
Notes:

Q308 YTD represents 9 months ended March 31, 2008

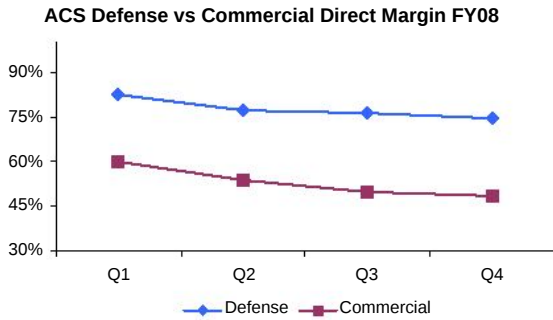
Figures represent GAAP reported results, as reported in March 31, 2008 10-Q filing

Q308 YTD Operating Profit Total excludes stock-based compensation expense

- Shift toward defense in ACS business unit



- Defense represents economic core of the business

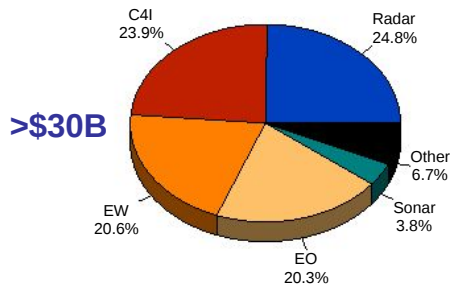


- Focus on strengthening Defense
- Higher margins in Defense
- Force R&D leverage back into model
- Select new commercial pursuit
- Differentiation and sustainability largely in Defense

* Figures are approximate

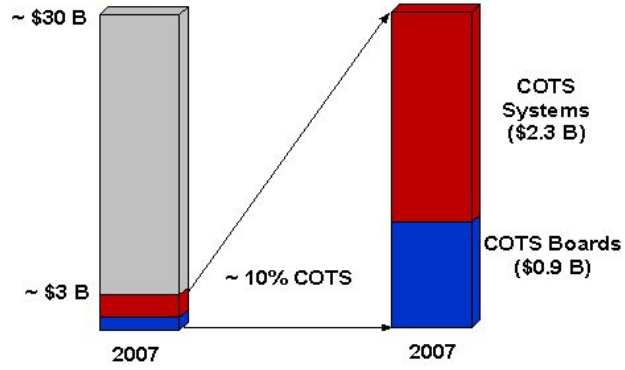
Total Military Electronics Market*

RDT&E+Procurement Available to the U.S.



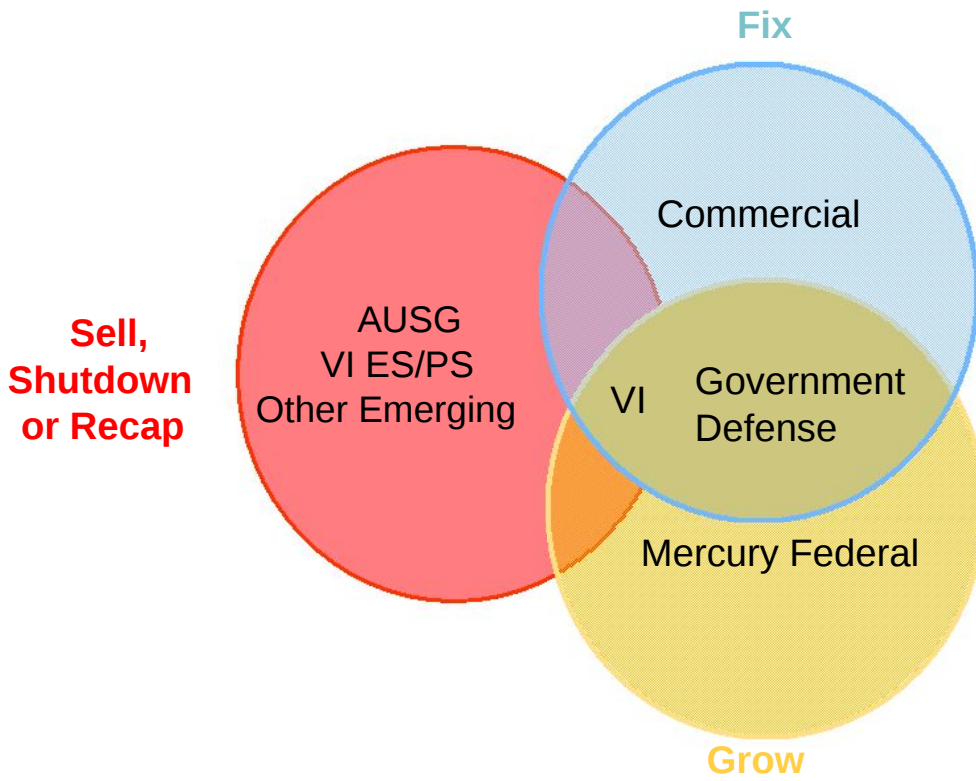
CAGR 3.5% (FY07-FY12)

Defense Electronics Market**

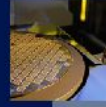
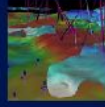


- COTS \$3B of \$30B total military electronics market
- Increased outsourcing and overall market growth
- Move toward collaborative COTS & system integration
- Platform upgrades, obsolescence, and new functionality
- New platforms with increased electronic content

Sources: * Venture Development Corp. Embedded COTS in Military, Aerospace, & Defense Study, 2008 **TEAL Group, Corp. Military Electronics Briefing with Mercury analysis

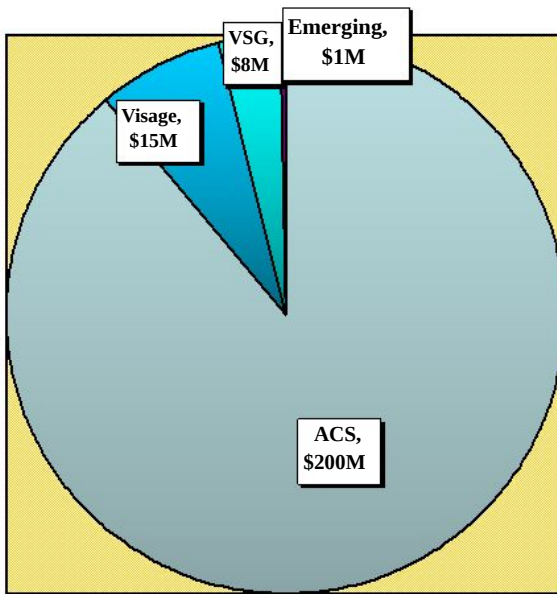


- **Short Term: Improve operations and cash flow**
 - Enhance leadership team to tackle short, medium, long-term strategy
 - Improve supply chain, manufacturing operations and shipment linearity
 - Increase turns
 - Simplify operations, cross-functional coordination
- **Medium Term: Strengthen and grow core defense business**
 - Focus and align organization and resources
 - Accelerate new product development
 - Reduce time to market
 - Improve market penetration
 - Expand opportunities with existing customer base
- **Long Term: Improve strategic position**
 - Increase software and services
 - Explore adjacencies around the Core – Mercury Federal
 - Target larger profit pools
 - Optimize the return from the Company's portfolio of businesses



Financial Overview

FY07 (Ended June) Revenue Mix*



- HQ in Chelmsford, MA
- Sales, support and R&D centers in U.S., Europe and Japan
- 745 employees worldwide ending Q308
- Founded in 1981
- FY2007 revenues of \$224 million
- NASDAQ: MRCY

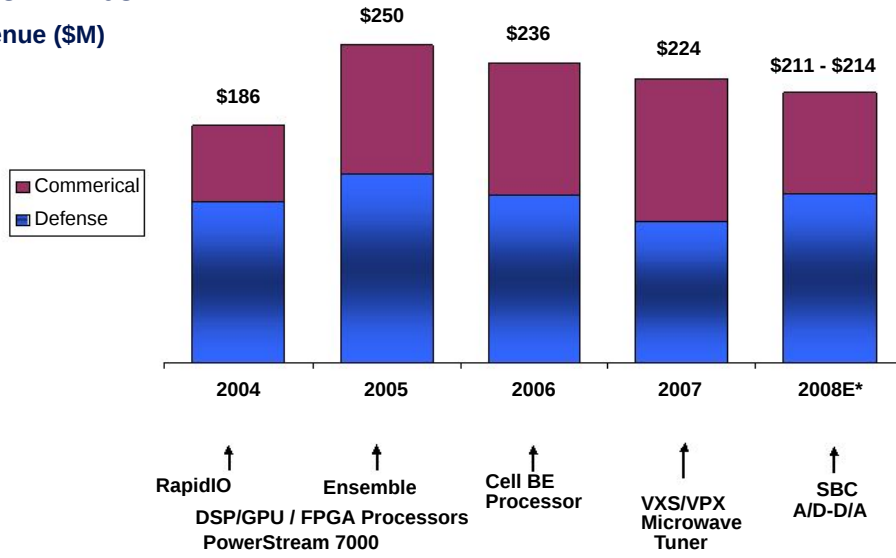
*FY07 business unit revenue re-cast is un-audited

June Fiscal Year End

~ 10% CAGR

FY98 – FY08E

Revenue (\$M)



Represents total Company revenues; VI, VSG and Emerging businesses revenue treated as Commercial

* Per Company guidance range, April 23, 2008 earnings conference call

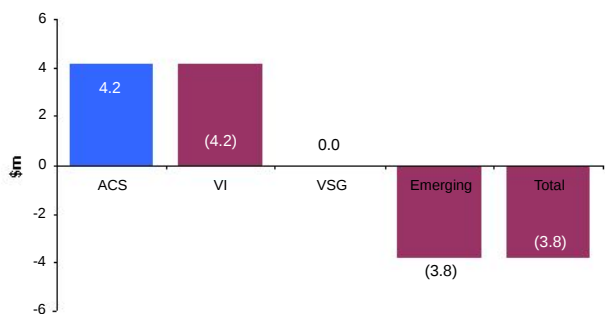
FY07 Compared to FY08 (Non-GAAP)

	FY07 Actual	FY08 Guidance*	FY08 Guidance vs FY07 Actuals
Revenue	224	211 - 214	(6%) - (4%)
Gross Margin % Revenue	55.8%	60%	4.2 pts
Operating Expenses	139	129	7% Improvement
Operating Profit % Revenue	(14) (6.3%)	(1) - 1 (1%) - 0%	\$13M - \$15M Improvement
EPS	\$(0.29)	\$0.12 - \$0.18	\$0.41 - \$0.47 Improvement
Operating Cash Flow	\$(10)	\$11M Q308 YTD	\$21M Improvement YTD

FY08 Operating Cash Flow represents 9 months ended, March 31, 2008

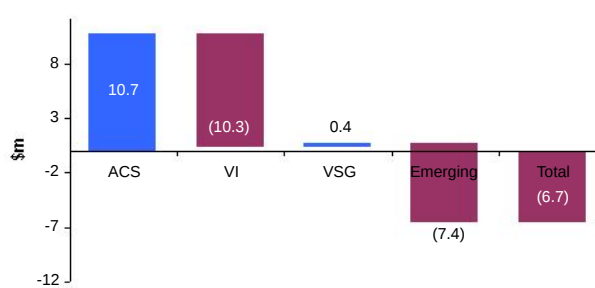
* Per Company guidance range, April 23, 2008 earnings conference call

Segment Operating Profit Q308



Includes \$1.8M amortization expense, \$1.2M restructuring and \$0.8M inventory writedown

Segment Operating Profit Q308 YTD



Includes \$5.5M amortization expense, \$1.5M restructuring and \$0.8M inventory writedown

- Profitability strength in ACS; other businesses eroding margin

Notes:

Q308 YTD represents 9 months ended March 31, 2008

Figures represent GAAP reported results, as reported in March 31, 2008 10-Q filing

Q308 and Q308 YTD Total exclude stock-based compensation expense

Historically strong
balance sheet

Net cash positive: \$37M

Projected FY08 capex of
\$5 million

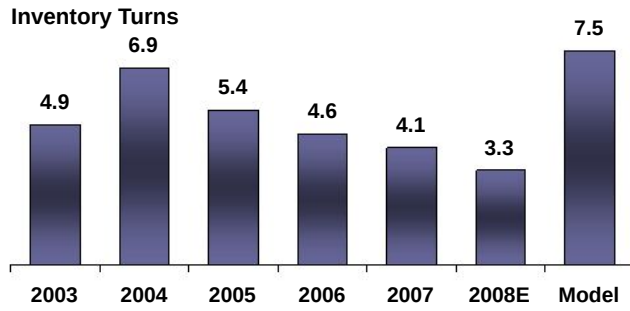
Positive free cash flow in FY08

<i>Quarter ended March 31, 2008</i>	
Cash and Equivalents	\$162
Total Current Assets	\$187
Total Assets	\$362
Total Debt *	\$125
Total Liabilities	\$195
Stockholders' Equity	\$167

* 2% convertible senior notes offering due 2024

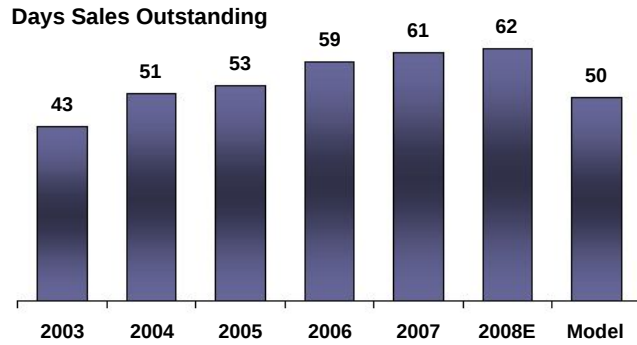
- **Supply chain transformation**

- Operational efficiencies
- Manufacturing lead times
- Cost of quality
- Competitive advantage for Mercury and customers



- **Customer satisfaction**

- End-of-quarter shipment skew
- DSO target 50 days



Non-GAAP	Guidance FY08*	ACS FY08	Timeless Business Model
Revenue	100%	100%	100%
Gross Margin	60%	60%	58+%
SG&A	36%	26%	Mid 20%
R&D	25% - 24%	23%	High Teens
Income from Operations	(1)% - 0%	10+%	15%

Declining gross margin

Costs Reduced

* Per Company guidance range, April 23, 2008 earnings conference call

	Q1		Q2		Q3	
	Reported	Guidance	Reported	Guidance	Reported	Guidance
Revenue (\$M)	\$ 49.2	\$ 48.0	\$ 52.6	\$ 51.0	\$ 56.5	\$53.0 - \$55.0
EPS	\$ 0.09	\$ (0.08)	\$ 0.04	\$ (0.05)	\$ 0.04	\$(0.04) - \$0.00

- First three quarters' revenue and non-GAAP EPS exceeded guidance
- Strong book-to-bill all quarters, 1.15 for Q308
- Operating cash flow generation of \$11.3 million for 9 months ending Q308
- Q308 DSO: 60 days; Q308 Inventory Turns: 3.3
- Capital expenditures of \$3.0 million for 9 months ending Q308

	Quarter Ending June 30, 2008	
Revenues (\$M)	\$53 - \$56	
	GAAP	Non-GAAP
Gross Margin	58% - 59%	58% - 59%
EPS	\$(0.30) - \$(0.22)	\$(0.05) - \$0.01

- Impact of equity-based compensation costs related to FAS 123(R) of approximately \$2.8M excluded from non-GAAP
- Acquisition-related amortization of approximately \$1.8M excluded from non-GAAP
- Restructuring and impairment charges of approximately \$1.3M excluded from non-GAAP

Notes:

- 1) *Figures in millions, except percent and per share data*
- 2) *Company guidance, April 23, 2008 earnings conference call*

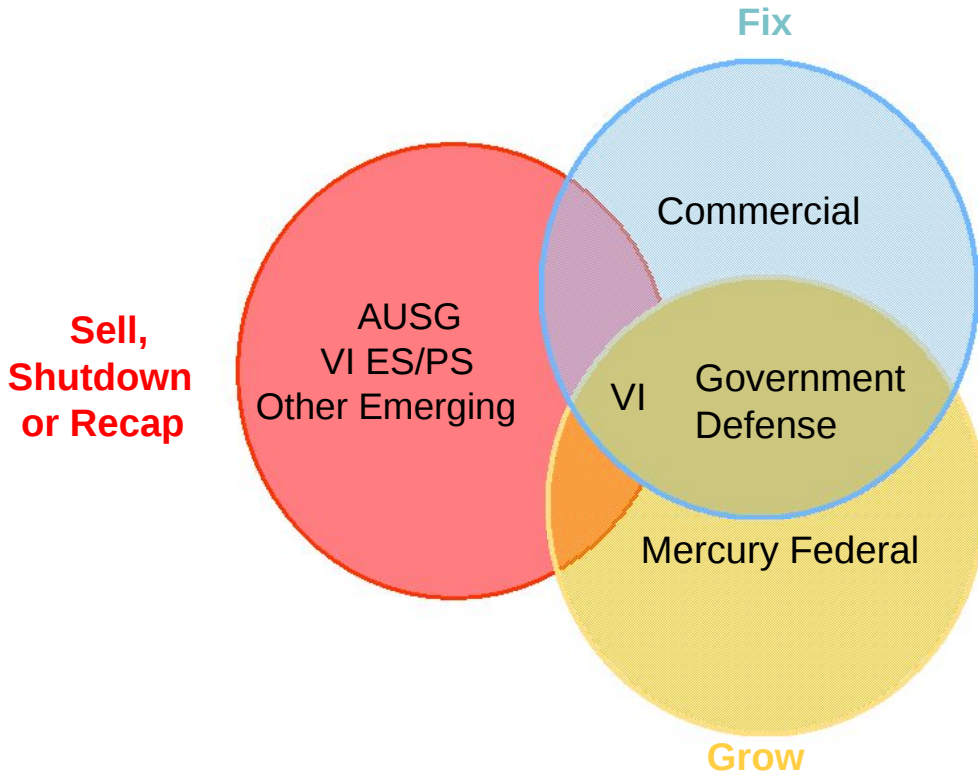
	Fiscal Year Ending June 30, 2008	
Revenues (\$M)	\$211 - \$214	
	GAAP	Non-GAAP
Gross Margin	60%	60%
EPS	\$(0.99) - \$(0.91)	\$0.12 - \$0.18

- Impact of equity-based compensation costs related to FAS 123(R) of approximately \$12.2M excluded from non-GAAP
- Impact of \$0.8M inventory writedown excluded from non-GAAP
- Acquisition-related amortization of approximately \$7.3M excluded from non-GAAP
- Restructuring and impairment charges of approximately \$2.8M excluded from non-GAAP

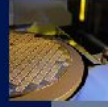
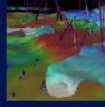
Notes:

1) *Figures in millions, except percent and per share data*

2) *Company guidance, April 23, 2008 earnings conference call*



www.mc.com
NASDAQ: MRCY



APPENDIX

Q408 and FY08 Guidance Reconciliation*

	RANGE	
	(Loss) Income Per Share - Diluted	(Loss) Income Per Share - Diluted
GAAP expectation	\$ (0.99)	\$ (0.91)
Adjustment to exclude stock-based compensation	0.56	0.56
Adjustment to exclude amortization of acquired intangible assets	0.34	0.34
Adjustment to exclude restructuring and impairment	0.13	0.13
Adjustment for inventory writedown	0.04	0.04
Adjustment for tax impact	0.04	0.02
Non-GAAP expectation	\$ 0.12	\$ 0.18
RECONCILIATION OF FORWARD-LOOKING GUIDANCE		
Quarter ending June 30, 2008		
	Loss Per Share - Diluted	(Loss) Income Per Share - Diluted
GAAP expectation	\$ (0.30)	\$ (0.22)
Adjustment to exclude stock-based compensation	0.13	0.13
Adjustment to exclude amortization of acquired intangible assets	0.08	0.08
Adjustment to exclude restructuring and impairment	0.06	0.06
Adjustment for tax impact	(0.02)	(0.04)
Non-GAAP expectation	\$ (0.05)	\$ 0.01

Note: figures are rounded

* Per Company guidance range, April 23, 2008 earnings conference call