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): August 9, 2011

Mercury Computer Systems, Inc.
(Exact Name of Registrant as Specified in Charter)

Massachusetts	**000-23599**	**04-2741391**
(State or Other Jurisdiction of Incorporation)	**(Commission File Number)**	**(IRS Employer Identification No.)**

201 Riverneck Road, Chelmsford, Massachusetts 01824
(Address of Principal Executive Offices) (Zip Code)

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

Not Applicable
(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 August 9, 2011 at the Morgan Keegan Security & Defense Conference to be held on August 9, 2011 in New York, New York. 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

Exhibit No.	Description
99.1	Presentation materials dated August 9, 2011.

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 thereunto duly authorized.

Dated: August 9, 2011

MERCURY COMPUTER SYSTEMS, INC.

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 August 9, 2011.

Exhibit 99.1

MERCURY COMPUTER SYSTEMS™

Investor Show

Mark Aslett
President & CEO

Bob Hult
SVP & CFO

Forward-Looking Safe Harbor Statement

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 fiscal 2011 business performance and beyond and the Company's plans for growth and improvement in profitability and cash flow. You can identify these statements by the use of the words "may," "will," "could," "should," "plans," "expects," "anticipates," "continue," "estimate," "project," "intend," "likely," "probable," 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, inability to fully realize the expected benefits from acquisitions and divestitures or delays in realizing such benefits, challenges in integrating acquired businesses and achieving anticipated synergies, changes to export regulations, increases in tax rates, changes to generally accepted accounting principles, difficulties in retaining key employees and customers, unanticipated costs under fixed-price service and system integration engagements, and various other factors beyond our control. These risks and uncertainties also include such additional risk factors as are discussed in the Company's filings with the U.S. Securities and Exchange Commission, including its Annual Report on Form 10-K for the fiscal year ended June 30, 2010. 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

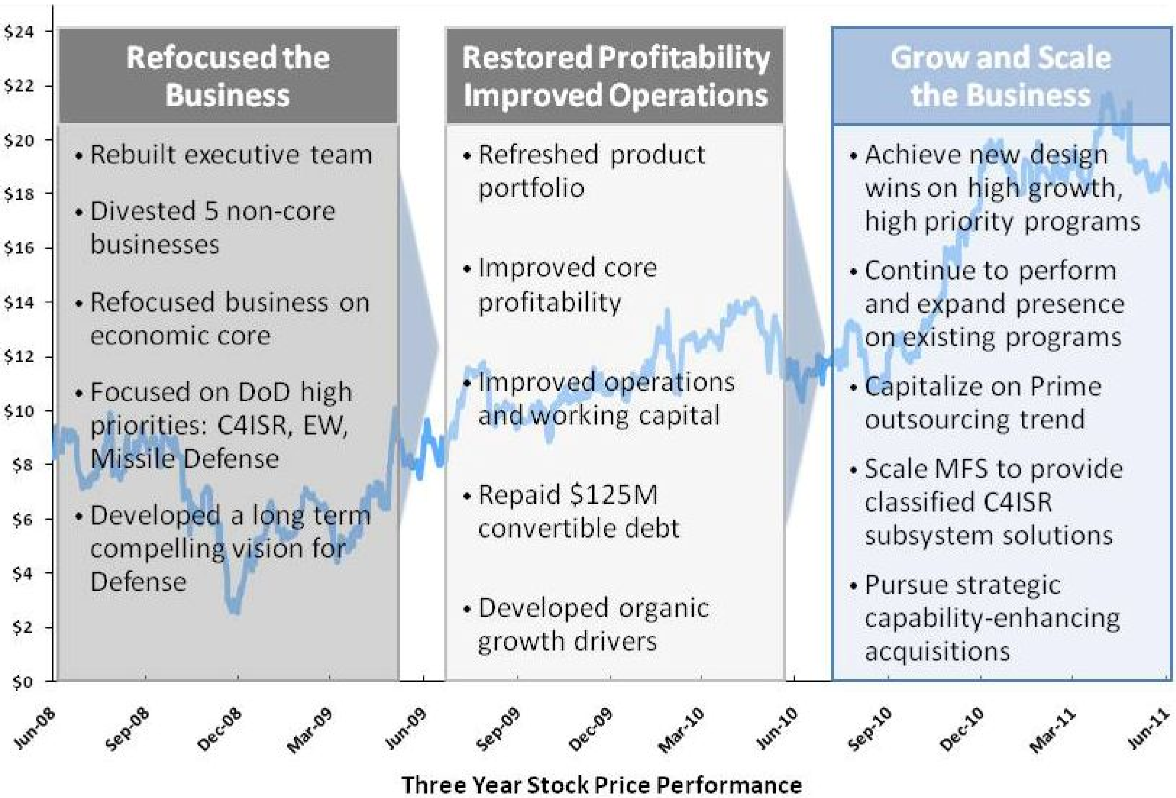
In addition to reporting financial results in accordance with generally accepted accounting principles, or GAAP, the Company provides adjusted EBITDA; free cash flow; and adjusted working capital, which are non-GAAP financial measures. Adjusted EBITDA excludes certain non-cash and other specified charges. Free cash flow is defined as cash flow from operating activities less capital expenditures. Adjusted working capital is defined as accounts receivable, net of allowance for doubtful accounts and inventory less accounts payable and accrued expenses. The Company believes these non-GAAP financial measures are useful to help investors more completely understand its past financial performance and prospects for the future. However, the presentation of adjusted EBITDA; free cash flow; and adjusted working capital is not meant to be considered in isolation or as a substitute for financial information provided in accordance with GAAP. Management believes the adjusted EBITDA; free cash flow; and adjusted working capital 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 the 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.

Introducing Mercury Computer Systems

- MRCY on NASDAQ
- Real-time digital image, signal and sensor processing solutions
- Focused on DoD high priorities:
  - C4ISR; Electronic Warfare; Missile Defense
- Deployed on ~300 programs with 25+ Primes
- $229M FY11 revenues; 18% Adj. EBITDA margin; 602 employees
- Defense revenue ~80% and 61% growth FY07 to FY11

Best-of-breed provider of open, commercially developed, application-ready and multi-INT subsystems for the ISR market

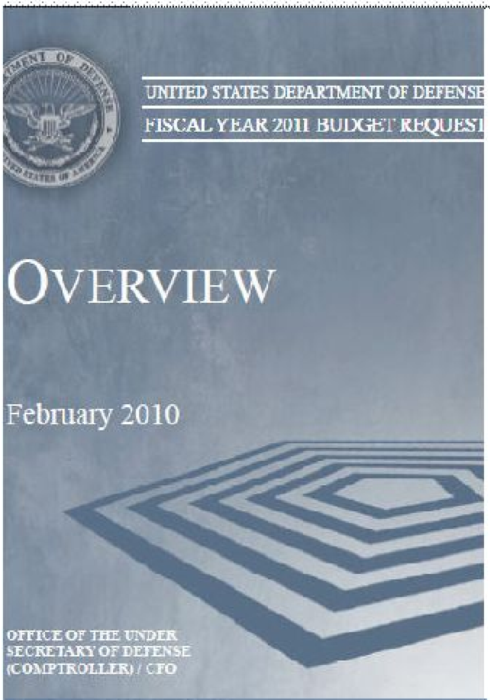
We have successfully transformed the business and poised Mercury for growth



Mercury investment highlights

Leading Market Position	Pure-play C4ISR and defense electronics company entrenched on a diverse mix of programs aligned with DoD priorities
Differentiated Capabilities	Best-of-breed provider of specialized computing subsystems targeting the well funded and growing C4ISR market
Favorable Macro Industry Trends	Increased demand for ISR and a rapidly evolving threat environment driving greater demand for our products, solutions and capabilities
Unique Business Model	Well positioned to benefit from DoD procurement reform requiring more affordable and rapidly developed upgrades leading to increased outsourcing by the large Defense Primes
Proven Management Team	Well-defined strategy with a demonstrated track record
Well Positioned for Growth	Successful transformation has positioned the business for strong organic growth augmented through strategic acquisitions

C4ISR, Electronic Warfare and Missile Defense are DoD priority areas and continue to be well funded



- DoD spending projection is $708 billion for 2011
- Defense procurement reform well underway
- Our market opportunity is defined by the growing demand for specialized embedded defense computing solutions
- C4ISR (Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance) is a $43 billion market segment and a high priority for the defense department

Procurement reform increasing opportunity for Mercury

Defense procurement reform: Shifting DoD priorities favor more affordable upgrades of existing platforms

Government

- Provide the war fighting capability we need with the dollars we have
- Restore affordability to Defense goods and services procurement
- Shorten procurement cycles; focus on upgrades to address urgent needs
- Obtain greater efficiency, affordability and productivity in Defense spending
- Avoid program turbulence and maintain a vibrant and healthy Defense industry

Primes

- Reduce risk given DoD shift to firm fixed price contract awards
- Primes shift from high fixed cost to variable cost model
- Affordably upgrade existing platforms with new capabilities
- Compress development and deployment cycles
- Differentiate solutions with less internal R&D dollars
- Increase success rate on new programs and re-competes

As a direct result of procurement reform Primes are outsourcing to best-of-breed companies like Mercury

C4ISR landscape – a scarcity of public investment opportunities

Defense Primes

- Engaged across all sectors of the defense industry
- Limited growth due to exposure to broader DoD budget

Large Cap Diversified

- C4ISR assets embedded in broader defense capabilities portfolio
- Focus split between commercial aerospace and defense industries

Semi-Specialized Small/Mid Cap

- Some C4ISR focus among broader capabilities set
- Unwanted exposure to vulnerable portions of the DoD budget
- Risk associated with government insourcing of services functions

Private or Acquired

- Several private C4ISR companies with no near-term IPO plans
- Several C4ISR companies have recently been acquired

Pure-Play C4ISR & Defense Electronics

- **Strong C4ISR focus. Limited exposure to broader DoD budg**
- **Public asset with scale that provides clear C4ISR investmen**
- **Business model that anticipated and expects to benefit from shifting DoD priorities and Defense procurement reform**
- **Well positioned for growth and higher returns in a consolida industry**

We've been making customers successful for 30 years

NORTHROP GRUMMAN
LOCKHEED MARTIN
BAE SYSTEMS
Raytheon
BOEING
TELEPHONICS
SNC SIERRA NEVADA CORPORATION ELECTRONIC SYSTEMS AND INTEGRATION
ITT
GENERAL ATOMICS

Deployed on approximately 300 programs with 25+ Primes

Best-of-breed solutions spanning the entire signal processing chain

- State-of-the-art, mixed silicon, real-time embedded signal processing and multi-computing solutions
- Advanced size, weight and power design and packaging
- Ruggedized for deployment; production volume ready
- Application middleware: portability, scalability, high-availability, virtualization
- Best performance available using open standards

Boards

Full range of high-performance embedded processor and I/O boards for the most demanding applications

Systems

High-performance sub-systems solutions spanning the entire signal processing chain

Services

Outsourced engineering and Systems Integration services accelerate development and deployment of affordable customized subsystems for ISR applications to Defense primes

Software

High value added software and middleware for signal and image processing, visualization, analysis, and image reconstruction

We solve problems that can't be solved with commercial compu

Increased demand for ISR and rapidly evolving threats drive greater demand…

- More and better sensors lead to overwhelming data
- EW: new and rapidly evolving threats
- Radar: smaller, faster targets. New technologies
- EO/IR: leap in imaging detail, onboard exploitation and real-time tactical acces
- C4I: Net-centric command, control and collaboration
- Time to relevant information is critical

for the onboard processing products and solutions we provid

Aegis ballistic missile defense: SPY-1 BMD Radar

- Countering rogue nations' ballistic missile threats
- First systems installed on Aegis ships
- $24M booked in FY11
- 43 ship upgrade scheduled over 5 years
- Upside opportunities:
  - New data recorder design win in FY10
  - Lockheed Martin awarded Aegis Ashore development
  - FMS sales opportunities

Mercury's largest single program in production to date

SEWIP Block 2: Countering new emerging peer threats

- Naval surface fleet EW upgrade to counter emerging peer threats
- Lockheed Martin displaced incumbent
- Met compressed schedule for field trials
- Leveraged Mercury application expertise
- Delivered best-of-breed application-ready subsystem
- EW performance-optimized

Strong partnership with Prime driving Mercury content expansion

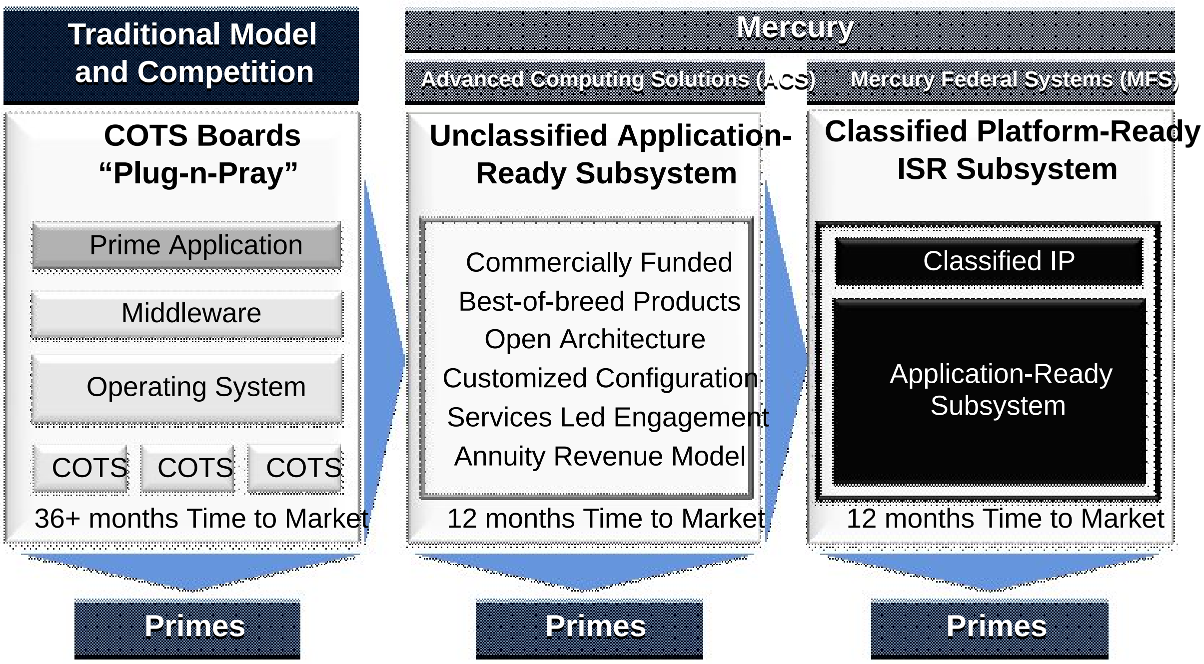
JCREW 3.3: Joint services CIED program of record

- Software defined jammer to defeat roadside bombs
  - Signal Processing & RF Tuners
- Previous generations high volume ground mobile
  - JCREW 2.1 25,000 systems
  - JCREW 3.2 5,000 systems
- JCREW 3.3 Presolicitation:
  - Currently EDM phase
  - ITT sole source. LRIP up to 1,350 systems
  - LRIP period FY13 thru FY14
  - Navy intends to compete full rate production

Potentially the largest program Mercury has won to date

Note: Mercury not involved in JCREW 2.1 and 3.2

We anticipated shifting DoD priorities and uniquely positioned our business for growth and higher returns



Mercury is a best-of-breed outsourcing partner to the Primes

Patriot missile defense: Next generation ground radar

- First award $18M
  - Development
  - UAE
  - Entering production
- Awards received
  - UAE, Taiwan, Saudi
- Potential future FMS awards
- Major potential with US Army upgrade

Application-ready subsystem and Prime outsourcing success story

MFS major program: Wide Area Airborne Surveillance

- Quick reaction capability MFS providing image processing payload
- Partnered with Prime and other leading companies
- Rapid prototyping and demonstration of best-of-breed solution
- Open plug-n-play sensor bus architecture
- Real-time tailored feeds directly to the forces
- Near real-time “TIVO®” capability

Platform-ready ISR subsystem and Prime outsourcing success sto

Mercury has the strategy, infrastructure and pipeline to supplement organic growth with acquisitions

Acquisition Case Study: LNX

- World-class supplier of next generation RF receivers for signals intelligence, communications intelligence and electronic warfare applications
- Increased content on JCREW 3.3 by over 40%
- Acquired on January 12, 2011 for $31 million, plus up to a $5 million earn-out
- LNX FY10 revenue $14m, EBITDA >15%, 65 employees
- Expected to be neutral to modestly accretive within 12 months

Driving growth through acquisition

- Expand ACS core business in ISR and EW by adding relevant technology or products
- Add Mercury content and services to existing and future defense and intelligence programs
- Add an ISR platform company to scale MFS

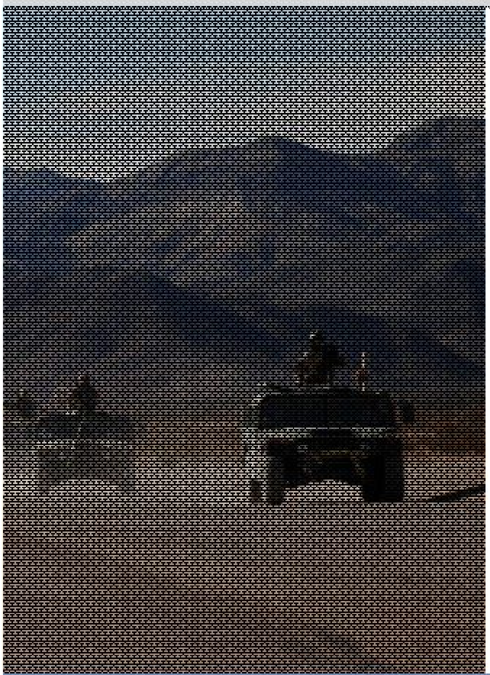
Focus on the following characteristics:

- Demonstrated profitability and growth
- Private; Low tens of millions revenue to start
- Accretive within 12 months or less
- Seek to execute with assets on hand / available

Proprietary pipeline of targets

- Attractive destination for target companies

Positioned for growth in a changing industry



- Focused on the right Defense market segments: ISR, Electronic Warfare and Missile Defense
- Positioned well on key programs and platforms to address today's and tomorrow's threats
- Business model aligned with Defense procurement reform
- Outsourcing partner to the Primes for best-of-breed application-ready and ISR subsystems
- Delivering strong organic growth in defense with improving profitability
- Pursuing complementary acquisitions to supplement organic growth

Continuing to build a pure-play, best-of-breed ISR subsystem and technology-enabled software and services company

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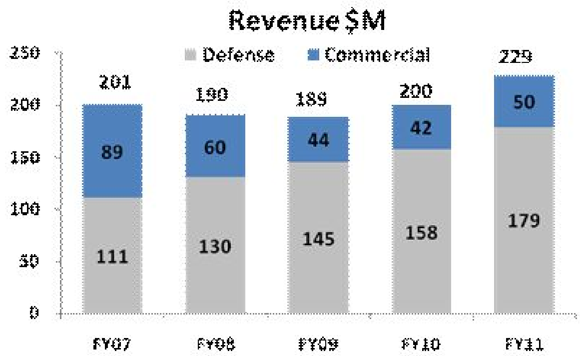
Financial Overview

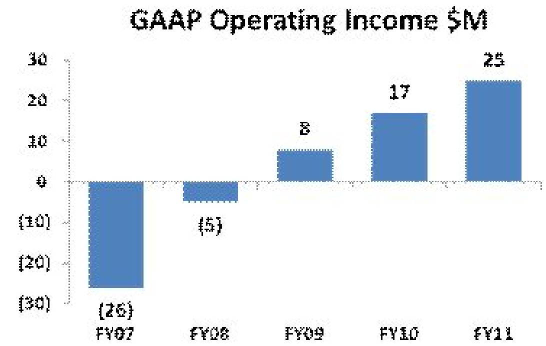
Financial highlights

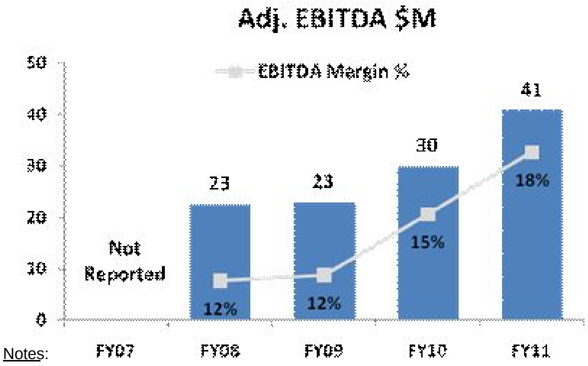
- Profitability restored
- Defense revenue growth accelerating
- Generating healthy free cash flows from operations
- Scalable working capital platform
- Strong balance sheet/no debt
- Performing at target business model 17-18% adj. EBITDA margin

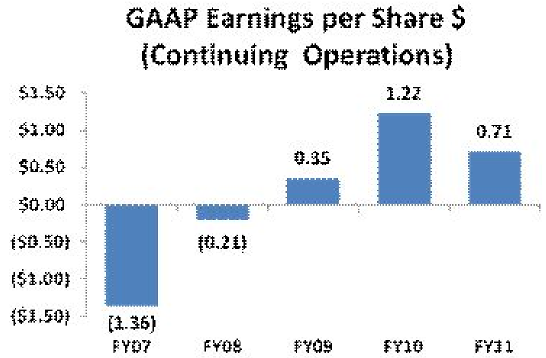
FY07 – FY11: Restored profitability and growth

Defense 61% growth (13% CAGR) since FY07.





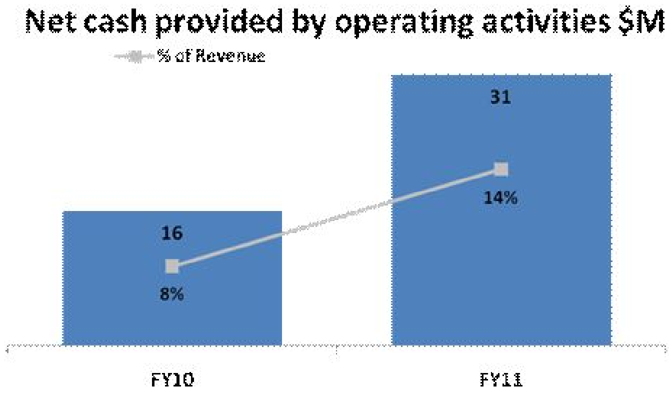


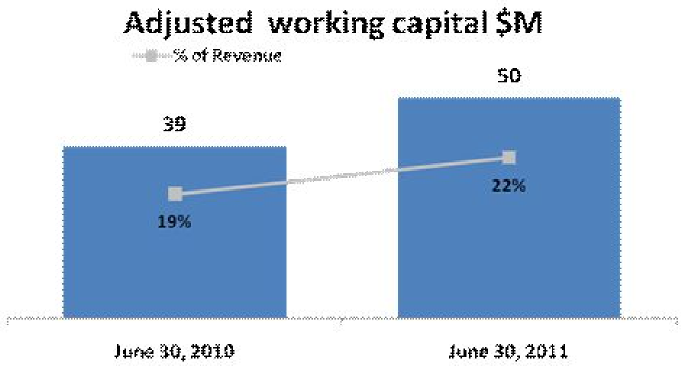


Notes:
- FY07 – FY10 figures are as reported in the Company's fiscal 2010 Form 10K. FY11 figures are reported in the Company's earnings release on August 2, 2011.
- FY10 Earnings per Share were positively influenced by the partial reversal of the valuation allowance against deferred tax assets and an effective FY10 tax rate benefit of approximately 5%.
- FY11 EPS includes the impact of 5.6M additional shares from our follow-on public stock offering on February 16, 2011.

Efficient working capital platform to support growth

- Engineering and supply chain transformation
  - Engineering methods
  - Investments in DFM
  - Operational efficiencies
  - Reduced lead times
  - Improved cost of quality
  - Outsourced manufacturing
- Customer satisfaction
  - Blue chip customers
  - Terms net 30





Note:
- Net cash provided by operating activities % of revenue is fiscal year ended June 30, 2010 and 2011, respectively.
- Adjusted working capital % of revenue is fiscal year ended June 30, 2010 and 2011, respectively.

Performing at target business model

- Organic growth only
- ACS : MFS revenue split 90% : 10% respectively
- High mix, low volume
- R&D delivering significant added value and returns
- Increased engineering services and systems integration
- Services-led design wins lead to long-term production subsystem annuity revenues

GAAP	FY08	FY09	FY10	FY11	Target Business Model
Revenue	100%	100%	100%	100%	100%
Gross Margin	58%	56%	56%	57%	54+%
SG&A and Other OPEX[1]	37%	29%	27%	26%	Low-mid 20's
R&D	24%	22%	21%	19%	High Teens
Operating Income	(3%)	4%	9%	11%	12-13%
Adj. EBITDA	12%	12%	15%	18%	17-18%

(1) Other OPEX includes: Amortization of Acquired Intangible Assets, Impairment of Goodwill and Long Lived Assets, Restructuring, Gain on Sale of Long Lived Assets, and Acquisition Costs and Other Related Expenses.

Mercury's balance sheet poised for investment

Acquisition financing available

	($M)
Q4'10 Cash and marketable securities	**74**
LNX Acquisition (net of cash acquired)	**(30)**
Net Proceeds from Stock Offering	**94**
Free cash flow	**23**
Other activity	**2**
Q4'11 Cash and marketable securities	**163**
Other financing sources:	
• Operating line of credit	**35**

Generating positive free cash flow from operations; zero deb

Q1 FY12 guidance

	Consensus	Q1 FY11 Actual	Quarter Ending September 30, 2011	
			Low	High
Revenue	**$56**	**$52**	**$54**	**$56**
GAAP EPS (Continuing)	**$0.11**	**$0.16**	**$0.10**	**$0.12**
Adj EBITDA	**$9.2**	**$8.8**	**$9.0**	**$10.0**
Note -Adj EBITDA Adjustments:				
Net income (Continuing)		**3.7**	**2.9**	**3.6**
Interest (income) expense, net		**0.0**	**(0.0)**	**(0.0)**
Income tax (benefit) expense		**2.1**	**1.4**	**1.8**
Depreciation		**1.4**	**1.9**	**1.9**
Amortization of acquired intangible assets		**0.3**	**0.8**	**0.8**
Fair value adjustments from purchase accounting		**0.0**	**(0.1)**	**(0.1)**
Stock-based compensation cost		**1.3**	**2.0**	**2.0**
Adj EBITDA		**8.8**	**9.0**	**10.0**

Notes:

- For the whole of fiscal 2012 we currently expect a roughly high single-digit, low double-digit overall organic revenue growth rate, year-over-year. We currently expect our fiscal 2012 operating margin to be roughly in line with the low end of our current target business model range of 12% to 13% and our adjusted EBITDA as a percentage of revenue to come in roughly in line with the model's high end of 18%. Due to the impact of the new shares issued in fiscal 2011, we currently expect EPS for fiscal 2012 to be approximately flat, year-over-year.
- Fiscal 2011 EPS includes the impact of 5.6M additional shares from our follow-on public stock offering on February 16, 2011.
- Adjusted EBITDA excludes reconciling items which have no impact.

Last 16 quarter's revenues and EPS exceeded or met the top end of guidance

Note: Non-GAAP GAAP

2008	Q1		Q2		Q3		Q4	
	Reported	Guidance	Reported	Guidance	Reported	Guidance	Reported	Guidance
Revenue ($M)	49.2	48.0	52.6	51.0	56.5	53.0-55.0	55.2	53.0-56.0
EPS ($)	0.09	(0.08)	0.04	(0.05)	0.04	(0.04)-0.00	0.01	(0.05)-0.01
2009	**Q1**		**Q2**		**Q3**		**Q4**	
Revenue ($M)	49.1	47.0-49.0	50.7	47.0-49.0	50.6	48.0-50.0	48.4	46.0-48.0
EPS ($)	0.07	(0.07)-(0.03)	0.03	(0.05)-0.00	0.20	0.05-0.09	0.13	0.05-0.08
2010	**Q1**		**Q2**		**Q3**		**Q4**	
Revenue ($M)	47.4	43.0-45.0	45.2	40.0-42.0	43.6	41.0-43.0	63.6	58.0-60.0
EPS ($)	0.19	0.03-0.08	0.08	(0.08)-(0.04)	0.16	(0.15)-(0.11)	0.77	0.25-0.28
2011	**Q1**		**Q2**		**Q3**		**Q4**	
Revenue ($M)	52.1	48.0-50.0	55.5	54.0-55.0	59.9	58.0-60.0	61.2	57.0-59.0
EPS ($)	0.16	0.03-0.06	0.22	0.10-0.12	0.20	0.16-0.18	0.14	0.11-0.13

Mercury investment highlights

Leading Market Position	Pure-play C4ISR and defense electronics company entrenched on a diverse mix of programs aligned with DoD priorities
Differentiated Capabilities	Best-of-breed provider of specialized computing subsystems targeting the well funded and growing C4ISR market
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Unique Business Model	Well positioned to benefit from DoD procurement reform requiring more affordable and rapidly developed upgrades leading to increased outsourcing by the large Defense Primes
Proven Management Team	Well-defined strategy with a demonstrated track record
Well Positioned for Growth	Successful transformation has positioned the business for strong organic growth augmented through strategic acquisitions

Appendix

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Adjusted EBITDA reconciliation

(000'S)	Years Ended June 30, 2008	2009	2010	2011
Income (loss) from continuing operations	$ (4,437)	$ 7,909	$ 28,069	$ 18,507
Interest expense (income), net	(3,129)	492	(151)	45
Income tax expense (benefit)	3,710	109	(9,377)	8,060
Depreciation	7,372	5,640	5,147	6,364
Amortization of acquired intangible assets	5,146	2,414	1,710	1,984
Restructuring	4,454	1,712	231	—
Impairment of long-lived assets	561	—	211	150
Acquisition costs and other related expenses	—	—	—	412
Fair value adjustments from purchase accounting	—	—	—	(219)
Stock-based compensation costs	8,848	4,582	4,016	5,580
Adjusted EBITDA	$ 22,525	$ 22,858	$ 29,856	$ 40,883

Adjusted working capital reconciliation

	As of	
(000's)	June 30, 2010	June 30, 2011
Accounts receivable, net of allowance for doubtful accounts	$ 36,726	$ 44,786
Inventory	17,622	18,540
Accounts payable	(10,533)	(7,972)
Accrued expenses	(5,025)	(5,452)
Adjusted working capital	$ 38,790	$ 49,902

Free cash flow reconciliation

	Years Ended June 30, 2010	Years Ended June 30, 2011
Cash flows from operations	$ 15,708	$ 31,474
Capital expenditures for property and equipment	(7,334)	(8,825)
Free cash flow	$ 8,374	$ 22,649