
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 17, 2010

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.)

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))
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Item 7.01 Regulation FD Disclosure.

The management of Mercury Computer Systems, Inc. ("Mercury") will present an overview of Mercury's business on May 17-18, 2010, at meetings with William Blair & Company in San Francisco, California. 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 meetings.

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 1 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 17-18, 2010 (filed herewith).

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: May 17, 2010

MERCURY COMPUTER SYSTEMS, INC.

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

Exhibit Index

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William Blair & Company San Francisco

**Mark Aslett – President & CEO
Bob Hult – SVP, CFO**

May 17 - 18, 2010

Forward-Looking Safe Harbor Statement

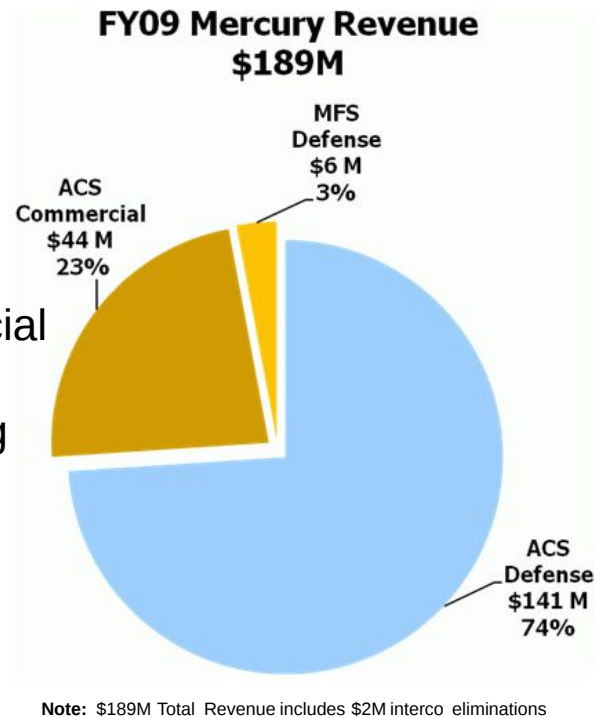
This presentation contains certain forward-looking statements, as that term is defined in the Private Securities Litigation Reform Act of 1995, including those relating to anticipated fiscal 2010 business performance and beyond. You can identify these statements by our use of the words "may," "will," "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, 2009. 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

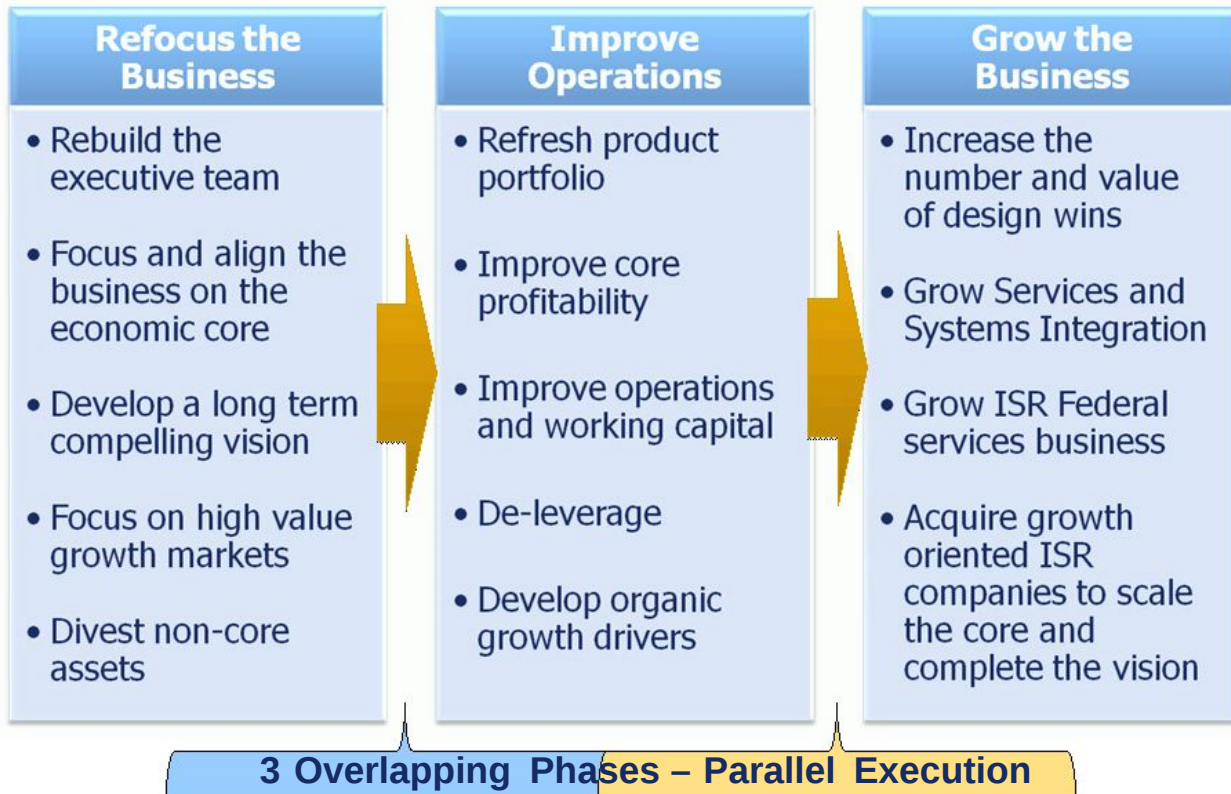
In addition to reporting financial results in accordance with generally accepted accounting principles, or GAAP, the Company provides non-GAAP financial measures adjusted to exclude certain specified charges, which the Company believes are useful to help investors better understand its past financial 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 most recent earnings release, which can be found on our [website at www.mc.com/mediacenter/pressreleaseslist.aspx](http://www.mc.com/mediacenter/pressreleaseslist.aspx).

Mercury is a platform-independent, best-of-breed ISR systems and services company

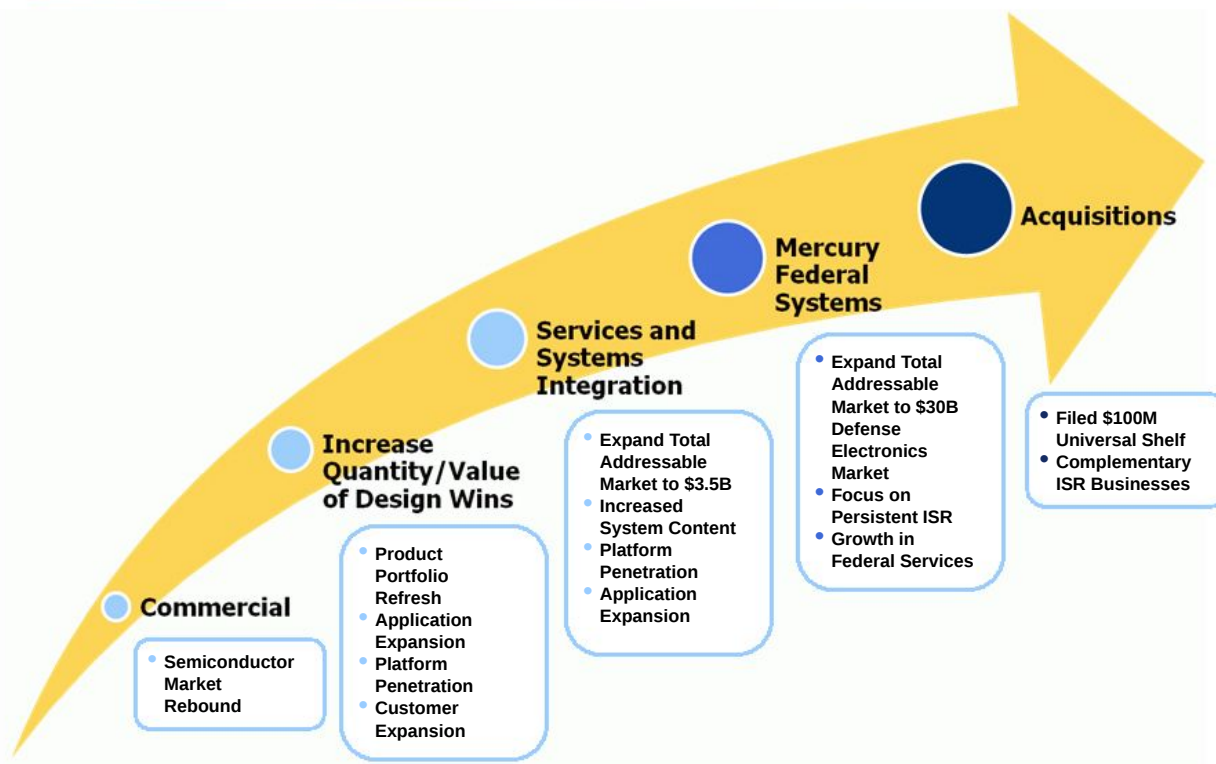
- Founded in 1981
- HQ in Massachusetts;
R&D in MA, VA, AL
- 513 employees
- Leading provider of commercial high-performance signal, image and sensor processing
- Focused on growing defense ISR market
- FY2009 revenues of \$189M
- NASDAQ: MRCY



Phases of Mercury's transformation



5 key business growth drivers



Success in semiconductor equipment – position controller for lithography

Application Requirement:

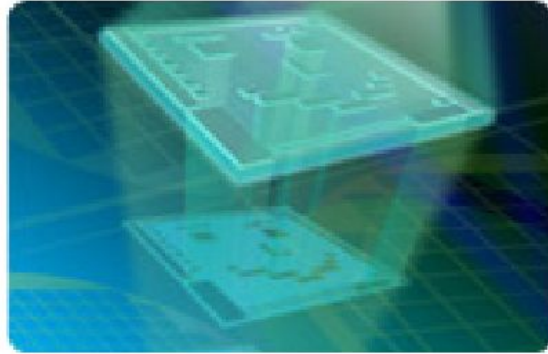
- Low-latency, deterministic processing for precision control in Stepper/Scanners

Initial Deal:

- \$10M pre-production orders booked and partially shipped
- Starting to receive production orders
- Integrated platforms for production (immersion/EUV, new/upgrades)

Advanced processing technology:

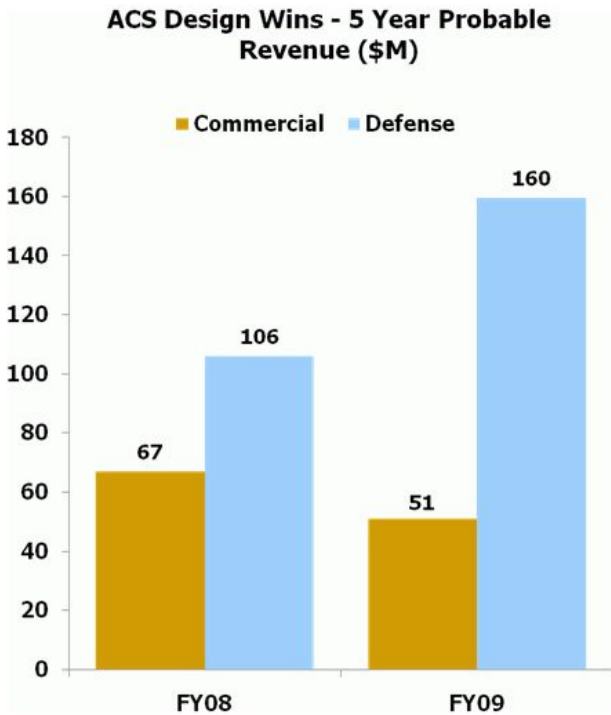
- AdvancedTCA utilizing serial RapidIO



Total Opportunity Potential: ~\$100M over 5 years

Note: Potential is 5 year probable value based on customer-supplied information at time design win awarded. Actual program value may be higher or lower

ACS 5-year design win value increased 22% overall in FY09 with 51% growth in defense



Defense Highlights

- Aegis – Naval BMD, C4I
- Missile Defense – Ground Radar
- Argon – Naval SIGINT
- Predator – Airborne Radar
- JCREW – Ground SIGINT
- Rivet Joint – Airborne SIGINT
- Gorgon Stare – Airborne ISR
- NASP – Airborne Sonar
- Guardrail – Airborne SIGINT

Commercial Highlights

- KLA Tencor – Semiconductor
- Hughes – Satellite Comms
- Rapiscan – Baggage Scanning
- L3 – Baggage Scanning
- ASML – Semiconductor

Note: Potential is 5 year probable value based on customer-supplied information at time design win awarded. Actual program value may be higher or lower

AEGIS BMD radar processing

- Selected for BMD Radar
 - Most powerful deployed embedded computer for digital beam-forming
 - Extend to Radar Control System
- Addressable market 60 ships out of 92
 - Plan of Record for ship upgrade:

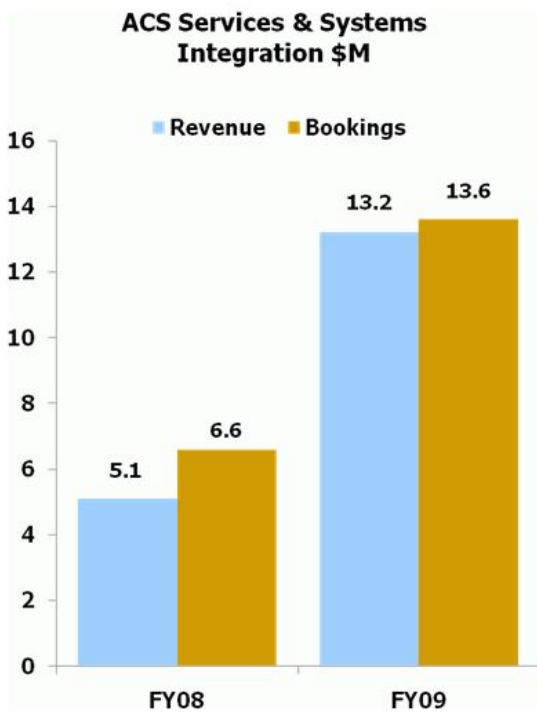


	2011	2012	2013	2014	2015	Total
	6	6	6	6-8	6-8	30-34

- Additional 8 ships to be built
- Upside with sales and additional ships in out years

Total 5 year opportunity: \$100M

Services and Systems Integration drove significant revenue growth in its first full year of operation



- Expand ACS total addressable market
- From startup in FY08, FY09 bookings growth +106%, revenue growth +157%
- FY09 proved the business model and potential
- Enables substitute and 3rd party technologies e.g. blade computing
- Enables faster time to revenue on programs and increased deal sizes

Success in Services & System Integration – Radar Digital Processor

Project Requirement:

- Phased Array Radar for Ground Missile Defense (FMS)

Initial Deal:

- \$12M engineering services and system integration
- \$6M production order (1 country)



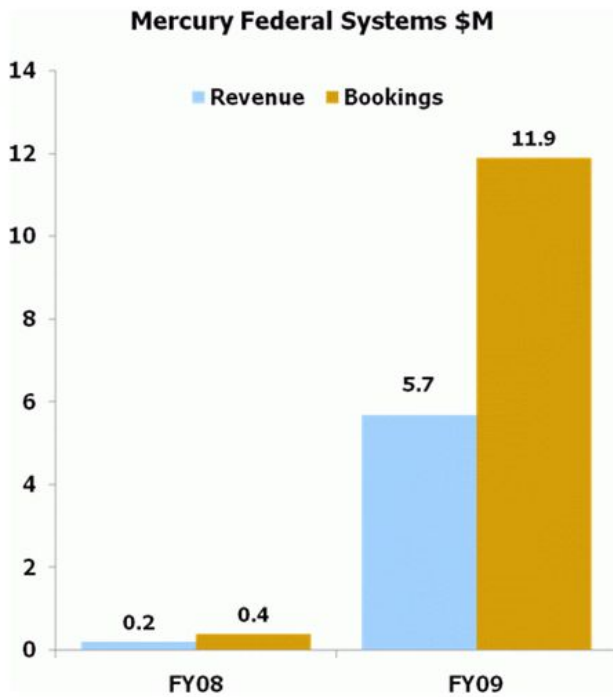
Advanced processing technology:

- OpenVPX™ embedded computing

**Future Opportunity Potential:
\$12M total production for next 2 countries;
~15-20 countries expected to follow**

Note: Potential is 5 year probable value based on customer-supplied information at time design win awarded. Actual program value may be higher or lower

Mercury Federal Systems (MFS) delivered significant first year bookings and revenue



- Strong revenue (\$5.7M) and bookings (\$11.9M) in FY09
- Concurrently, generating new opportunities for ACS
- 8 active engagements; 3 direct prime contracts
- Recognized by the DoD as advanced processing architects for next-gen airborne ISR systems

MFS success story – Wide Area Airborne Surveillance

Project Requirement:

- Concurrent near real-time situational awareness for MQ-9 Reaper UAV (Gorgon Stare)

Initial Deal:

- \$7M bookings
- 1/2 hardware / software
- 1/2 engineering services

Advanced processing technology:

- Embedded GPUs w/IO

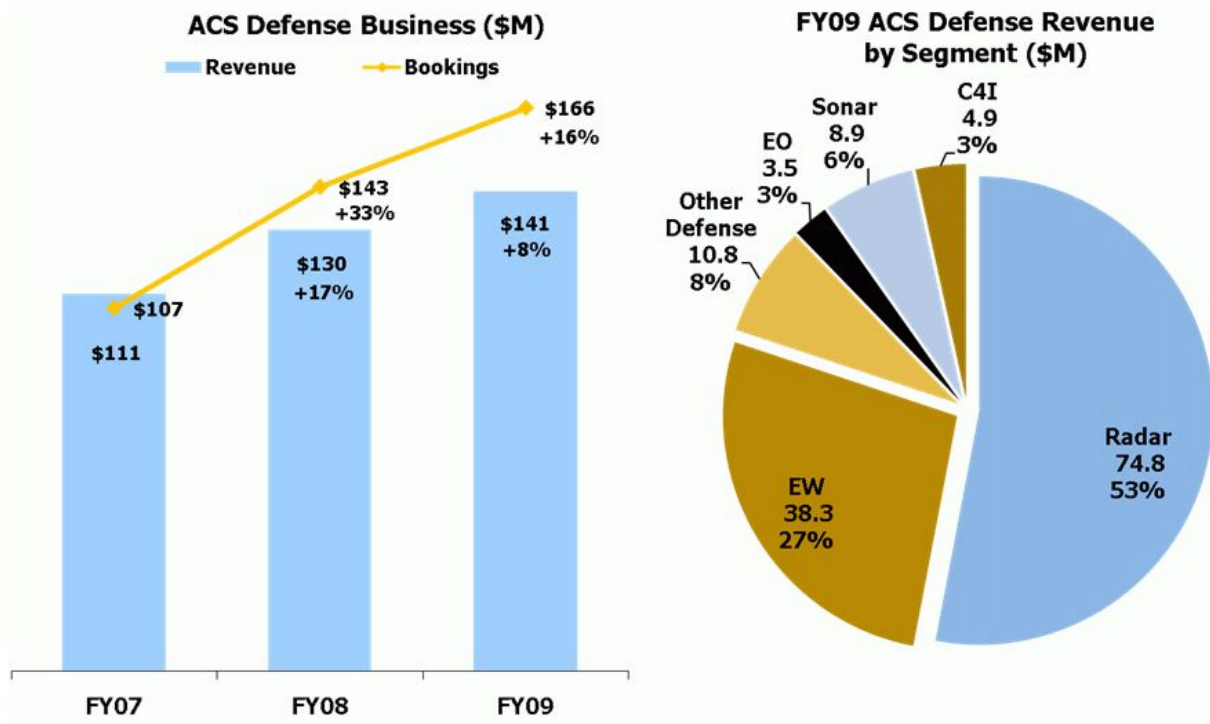


Total Opportunity Potential: ~ \$20M

Note: Potential is 5 year probable value based on customer-supplied information at time design win awarded. Actual program value may be higher or lower

Strength in ACS defense markets

- Radar (32% CAGR FY07-09) and EW (9% CAGR) driving growth



Key defense platforms and programs driving growth

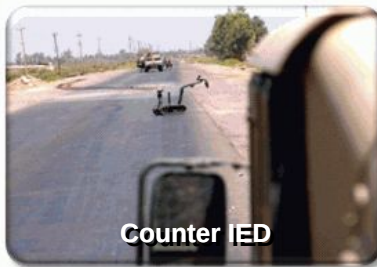
Global Hawk
Predator/Reaper
Rivet Joint
Gorgon Stare
F-16
F-35 JSF
BAMS
MESA
P8-MMA
MP-RTIP



Aegis
RDP - Ground Missile
Defense Radar
THAAD

Representative Program List

JCREW
Software
Defined Jammer

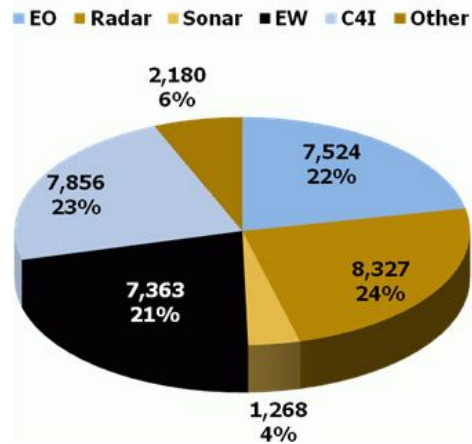


Guardrail
SSEE(F)
CADF
Deepwater

Military electronics is a market sweet spot

- Retrofit and upgrades remain strong for legacy programs
- Increased need for EW; intelligence, surveillance, reconnaissance assets
- Networked nodal platforms, time to information
- Next-gen onboard processing, exploitation and dissemination architecture critical

World Defense Electronics Funding Available to the US FY10 \$M Total > \$34B



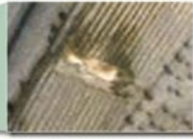
\$90B or 27% of the cumulative military electronics market spend over the next 10 years will be available for new primes

Sources : The Military Electronics Briefing, 2008 Ed. , The TEAL Group, Frost & Sullivan, U.S C4ISR Market 2007

To the warfighter, time to information is critical to address the growing gap between:

What's collected?

100TB per mission



What's analyzed?

100GB per mission

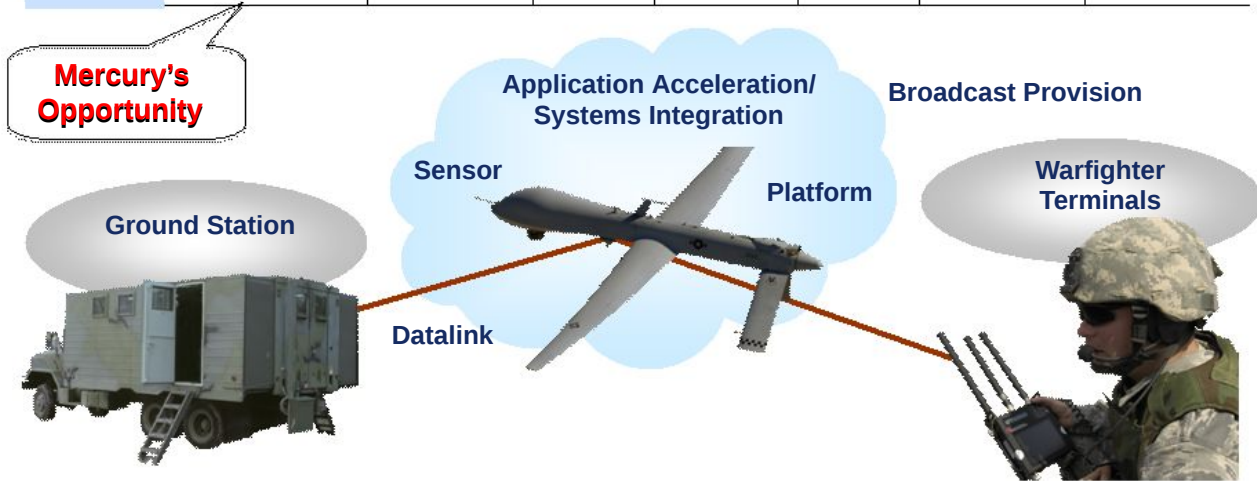
What's actionable?

For decision makers who need timely, actionable, and relevant information



Airborne ISR R&D costs

	Signal Processing / Systems Integration	Platform	Sensor	Datalink	Ground Station	Warfighter Terminals	Broadcast Provision
1993	10%	40%	30%	5%	15%		
2008	45%	10%	15%	10%	10%	5%	5%

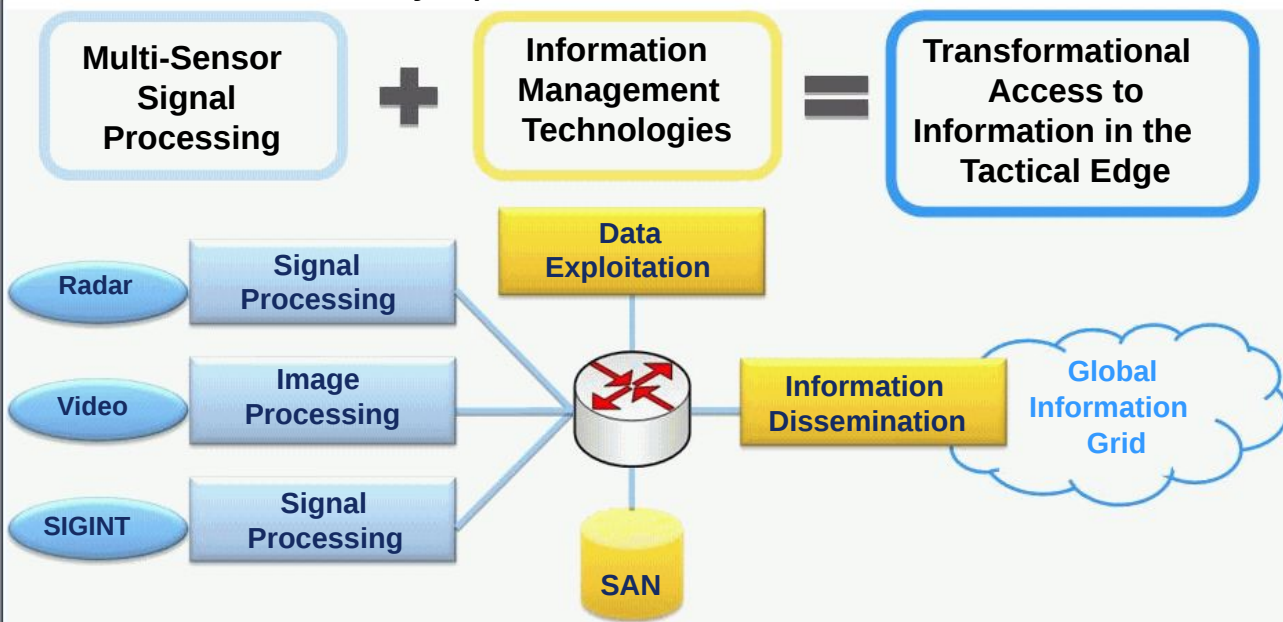


Budget priorities being realigned to maintain technology edge

Source: DoD Budget Request FY93 and FY2008

Mercury's new Converged Sensor Network™ (CSN™) vision for persistent ISR

A revolutionary open architecture that combines



Become the government's trusted partner for next-generation ISR platform signal processing and computing

Government/DoD frustration leads to defense procurement reform

Today's Model

- Government frustrated with current model
- Platform-centric approach
- Proprietary closed system architectures
- Significant cost overruns
- Significant schedule slips

Emerging Model

- Best-of-breed model emerging
- More commercial items
- Open platform-independent architectures
- QRC –rapid deployment, lower cost and risk
- Likely to occur for signal processing and computing

Budget pressure and significant schedule slippage is leading to Defense procurement reforms that could benefit Mercury

Positioned for growth

- Focused on growing ISR market segment
- Creating a platform-independent, best-of-breed ISR systems and services company
- Unique capabilities in commercial high-performance embedded signal, image and sensor processing
- Building government amenable business model in line with expected Defense procurement reform
- Delivering strong organic growth in defense with robust target business model
- Will pursue complementary ISR acquisitions to scale



Financial Overview

FY07 – FY10 YTD: Restored profitability

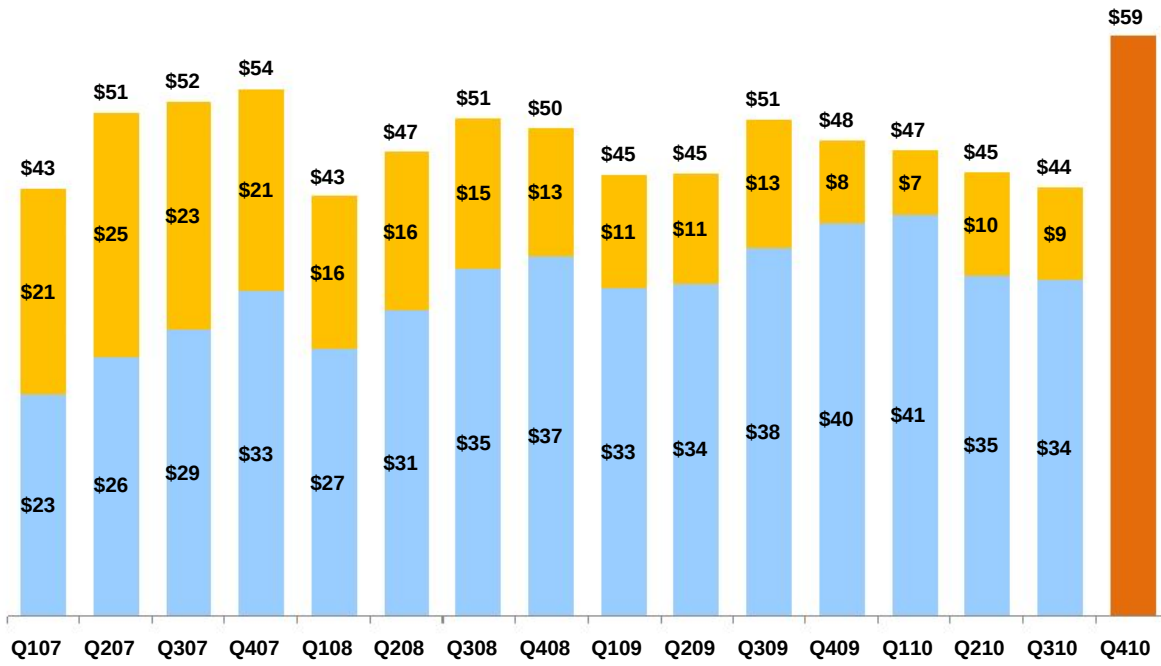
Non-GAAP	FY07	FY08	FY09	3Q YTD'10
Revenue (\$M)	224	210	189	136
Gross Margin % Revenue	55.8%	60.7%	55.9%	57.4%
Operating Expenses (\$M)	139	127	89	65
Income from Operations (\$M) % Revenue	(14) (6.3%)	1 0.3%	16 8.7%	13 9.4%
EPS	\$(0.29)	\$0.15	\$0.49	\$0.40
Operating Cash Flow (\$M)	\$(10)	\$14	\$11	\$12
# Employees	729	670	517	540

Note: All historical income statement figures are as reported in the Company's earnings press release at the end of the applicable fiscal year and have not been restated for operations that have been discontinued subsequent to that time.

Strong defense revenue

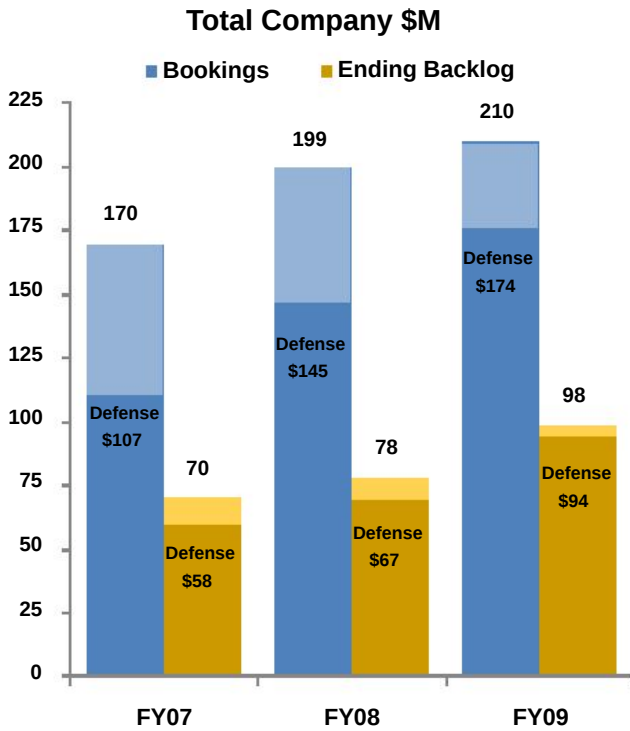
14% Defense CAGR
FY07 – FY09
Revenue (\$M)

Defense Commercial Q4'10 Mid-Point Guidance



Note: All historical figures adjusted for discontinued operations

Strong growth in bookings and backlog



Note: Historical figures adjusted for discontinued operations

FY07-FY09:

- Total Company
 - 11% Bookings CAGR
 - 18% Backlog CAGR
- Defense
 - 28% Bookings CAGR
 - 28% Backlog CAGR

Improved working capital efficiencies

- Supply chain transformation

- Operational efficiencies
- Manufacturing lead times
- Cost of quality
- Competitive advantage for Mercury and customers
- Inventory reduced \$8.6M from Q3 FY08 to Q3 FY10



- Customer satisfaction

- Blue chip customers
- End-of-quarter shipment skew



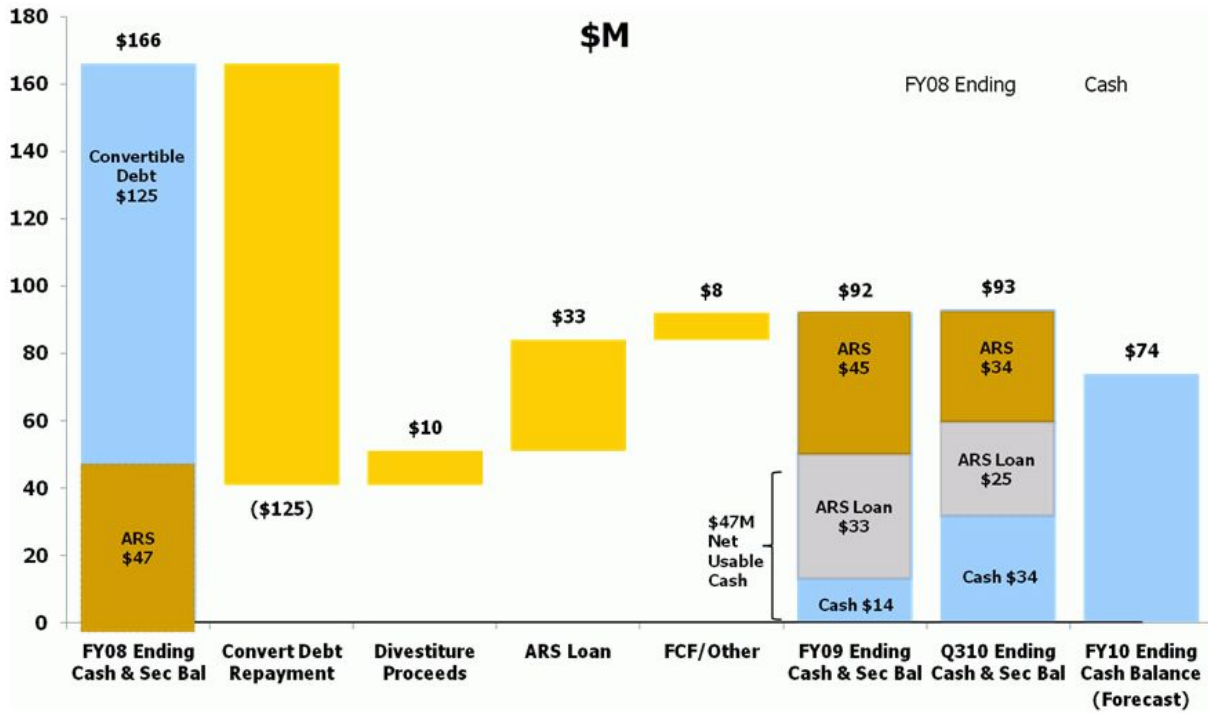
Much improved cash conversion cycle

Cash Conversion Trend (days)



Note: Cash conversion calculation = DSO's + Inventory Days - A/P Days

Repaid debt and improved cash balance



Note: ARS settlement at par (\$38M) with UBS 6/30/10

Strong and unencumbered balance sheet

	Q3'10 (\$M)
Cash and Marketable Securities	93
Total Current Assets	152
Total Assets	225
Debt	25
Total Liabilities	67
Shareholders' Equity	158

- Generated \$7M free cash flow in 3Qs'10
- Zero cost ARS loan of \$25M
- \$38M ARS balance repaid at par 6/30/10
- 23.2M diluted weighted average shares outstanding for the 3 months ending 3/31/10

Robust target business model

GAAP	MFS Proforma	ACS Proforma	Target Business Model
Revenue	100%	100%	100%
Gross Margin	20%	55%	54+%
SG&A	12%	23%	Low-mid 20's
R&D	0%	19%	High Teens
Income from Operations	~8%	~13%	12-13%
Adj EBITDA	~11%	~18%	17-18%

Notes: Target Business Model assumes organic growth. ACS /MFS approx 90%/10% revenue split
Adj EBITDA adjusts for Depreciation 2-3% of revenue and Stock Based Comp 2-3% of revenue

3Q YTD'10 prior year comparison (GAAP)

GAAP	3Q YTD'09	3Q YTD'10	Fav/(Unf)
Revenue (\$M)	140	136	(4)
Gross Margin % Revenue	56.6%	57.3%	0.7 pts
Operating Expenses (\$M)	74	70	4
Income from Operations (\$M) % Revenue	5 3.7%	8 6.0%	3 2.3 pts
Adj EBITDA (\$M)	17	17	0
EPS (continuing)	\$0.22	\$0.44	\$0.22
Operating Cash Flow (\$M)	8	12	4

Notes:

1) All historical income statement figures have been restated for operations that have been discontinued subsequent to that time.

2) Adj EBITDA is earnings before impairment charges, interest, taxes, restructuring, stock compensation, amortization and depreciation.

Last 11 quarter's revenues and EPS exceeded or met the top end of guidance

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		
EPS (\$)	0.19	0.03-0.08	0.08	(0.08)-(0.04)	0.16	(0.15)-(0.11)		

Note: **Non-GAAP** **GAAP**

Q4'10 guidance (\$M)

Quarter Ending June 30, 2010		
	Low	High
Revenues	\$58	\$60
GAAP EPS	\$0.25	\$0.28
Adj EBITDA	\$9.3	\$9.9
Note - Adj EBITDA Adjustments:		
Net Income	5.9	6.5
Stock compensation	1.2	1.2
Interest Expense	0.1	0.1
Interest Income	(0.2)	(0.2)
Taxes	0.3	0.3
Amortization	0.4	0.4
Depreciation	1.5	1.5
Adj EBITDA	9.3	9.9

Financial summary

- Returned to profitability
- 11% bookings and 18% backlog growth (CAGR)
- Improved working capital efficiencies
- Healthy cash flows from operations
- Strong and unencumbered balance sheet
- Robust target business model 17-18% Adj. EBITDA
- \$100M shelf registration effective

Thank You



www.mc.com

NASDAQ: MRCY



Appendix

GAAP to Non-GAAP Reconciliation (\$M)

	Year Ended June 30, 2007	Year Ended June 30, 2008	Year Ended June 30, 2009
GAAP net income (loss)	(\$37.8)	(\$35.4)	(\$1.3)
Adjustment to exclude stock-based compensation	10.6	10.4	4.6
Adjustment to exclude inventory write-down	0.0	0.8	0.0
Adjustment to exclude in-process research and development	3.1	0.0	0.0
Adjustment to exclude amortization of acquired intangible assets	7.2	7.3	2.4
Adjustment to exclude impairment of goodwill and long-lived assets	0.1	18.0	0.0
Adjustment to exclude restructuring	5.5	5.2	1.7
Adjustment to exclude gain on sale of long-lived assets	0.0	(3.2)	0.0
Adjustment for tax impact	5.2	0.2	(5.6)
Non-GAAP net income (loss)	(\$6.2)	\$3.3	\$1.8
Adjustment to exclude taxes and other income (expense)	7.8	2.8	0.2
Non-GAAP Income (loss) from operations	(\$14.0)	\$0.5	\$1.6
GAAP net income (loss)	(\$37.8)	(\$35.4)	(\$1.3)
Adjustment to exclude loss from disco ops, net of income taxes	(8.9)	(30.0)	(20.3)
Adjustment to exclude gain (loss) on sale of disco ops	0.0	(1.0)	11.1
GAAP net income (loss) from continuing operations	(\$28.9)	(\$4.4)	\$7.9
Adjustment to exclude GAAP related items ⁽³⁾			3.1
Non-GAAP net income (loss) from continuing operations			\$11.0
Adjustment to exclude taxes and other income (expense)			5.4
Non-GAAP Income (loss) from continuing operations			\$16.4
Net income (loss) per share - Diluted - GAAP	(\$1.78)	(\$1.64)	(\$0.06)
Net income (loss) per share - Diluted - Non-GAAP	(\$0.29)	\$0.15	\$0.08
Net income (loss) per share - continuing operations - Diluted - GAAP	(\$1.36)	(\$0.21)	\$0.35
Net income (loss) per share - continuing operations - Diluted - Non-GAAP			\$0.49
Weighted average shares - Diluted - GAAP	21.2	21.6	22.4
Weighted average shares - Diluted - Non-GAAP	21.2	22.0	22.4

Notes:

- 1)FY07 – FY08 income statement figures are as reported in the Company's earnings press release at the end of the applicable fiscal period
- 2)FY09 income statement figures are restated for discontinued operations as reported
- 3)GAAP related items: stock comp, amortization, restructuring and adjustment to taxes

Adjusted EBITDA Reconciliation (\$M)

	Three Quarters Ended March 31, 2009	Three Quarters Ended March 31, 2010
Income from operations before income taxes	\$5.2	\$8.1
Other expense (income)	0.3	(0.9)
Income tax expense (benefit)	0.1	(1.0)
Income from continuing operations	\$4.8	\$10.0
Stock-based compensation expense	4.7	3.0
Impairment of long-lived assets	0.0	0.2
Interest Expense	2.3	0.3
Interest Income	(1.9)	(0.4)
Income tax expense (benefit)	0.1	(1.0)
Restructuring	0.7	0.2
Amortization of acquired intangible assets	1.9	1.3
Depreciation	4.3	3.8
Adjusted EBITDA	\$16.9	\$17.4

Note: All historical income statement figures have been restated for operations that have been discontinued subsequent to that time.