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 8, 2012

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 May 8, 2012 at meetings with Lazard Capital Markets. 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 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 May 8, 2012.

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 8, 2012

MERCURY COMPUTER SYSTEMS, INC.

By: /s/ Kevin M. Bisson

Kevin M. Bisson

Senior Vice President, Chief Financial Officer, and Treasurer

Exhibit Index

Exhibit No.	Description
99.1	Presentation materials dated May 8, 2012.

Exhibit 99.1

Lazard Capital Markets
Kansas City, MO/Dallas, TX
Road Show

May 8, 2012

Mark Aslett
President & CEO

Kevin Bisson
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 2012 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, 2011. 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 and free cash flow, 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. In addition the use of a last twelve months (“LTM”) period is not in accordance with GAAP. The LTM period presented is the mathematical addition of the results of the fourth quarter of fiscal 2011 and the first, second and third quarters of fiscal 2012. The Company believes these non-GAAP financial measures are useful to help investors better understand its past financial performance and prospects for the future. However, the presentation of adjusted EBITDA and free cash flow 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 and free cash flow 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. A reconciliation of GAAP to non-GAAP financial results discussed in this presentation is contained in the Appendix hereto.

Introducing Mercury Computer Systems

- MRCY on NASDAQ
- Real-time digital image, signal and sensor processing
- Commercial-item company unique business model
- Focused on DoD priorities
- Deployed on ~300 programs with 25+ Primes
- $229M FY11 revenues; 18% Adj. EBITDA margin; 750+ employees
- Defense revenue 61% growth (13% CAGR) FY07–FY11

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

Defense industry turning the page on a decade of war

- FY12 Defense budget approved - $530B base spending
- FY13 Defense budget request announced - $525B base spending
- Budget Control Act reduced FYDP spend growth vs 2012 requ
- Budget Control Act Jan 2013 sequester
- 2012 election year

Slower growth in defense spending anticipated over next 5 years

Source: DOD Comptroller 2012 Budget Request

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In the near term we believe the industry is entering an 18 month transition period …

- New DoD roles and missions announced
- Smaller force structure to protect readiness
- Increased investment in key areas e.g. ISR, EW
- Build capacity and capability of international partners
- Defense procurement reform also underway

…where there will be clear winners and losers

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Mercury investment highlights

Leading Market Position	Pure-play C4ISR, EW and defense electronics company entrench on a diverse mix of programs aligned with DoD priorities
Differentiated Capabilities	Best-of-breed provider of specialized sensor processing subsystems to large defense Primes targeting platform upgrades
Favorable Macro Industry Trends	Increased ISR usage, shift to onboard processing and exploitation evolving EW threats driving greater demand for Mercury solutions
Unique Business Model	Well positioned to benefit from DoD procurement reform, which is driving increased outsourcing by the large defense Primes
Proven Management Team	Well-defined strategy with a demonstrated track record of double-digit defense revenue growth and improved profitability
Well Positioned for Growth	Successful transformation has positioned the business for strong organic growth augmented through strategic acquisitions

Growth strategy summary

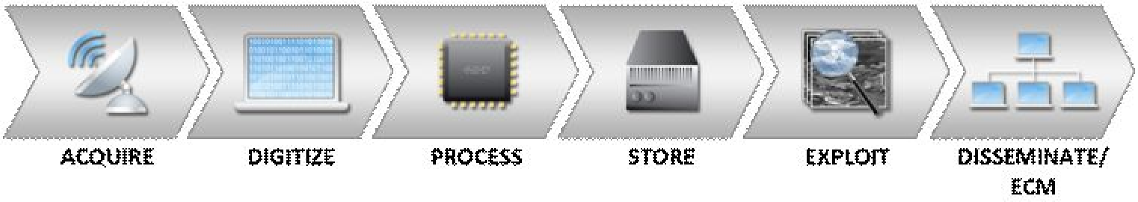
1. Expand our capabilities and offerings along sensor chain
2. Expand market presence within defense electronics
3. Continue to grow our customer and program base
4. Capitalize on Prime outsourcing / supply chain consolidation
5. Acquire complementary companies

Mercury has strategically positioned its business to grow

Historically, Mercury focused on one element of sensor chain

RACE++ Boards

From

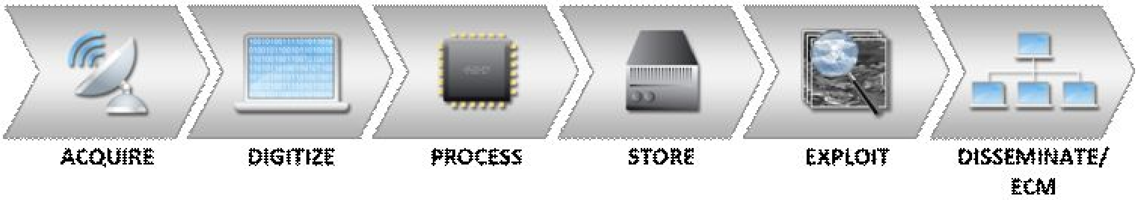


We are the leader in high-performance embedded computing

We now view our market opportunity as providing end-to-end open sensor processing subsystems – a much larger opportunity

RACE++ Boards

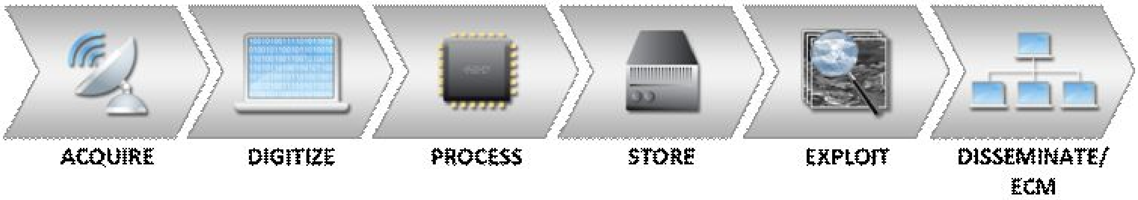
From



Open Sensor Processing Subsystems

Services and Systems Integration

To



We are systematically growing our capabilities, services and offerings along the sensor chain organically and by acquisitio

Mercury’s traditional market was narrowly defined as airborne radar processing …

C4ISR

$9,695M
25%

... limiting our growth potential within the C4ISR market

Since then, we have systematically broadened our addressable market within C4ISR …

C4ISR

C4I	RADAR	EW	EO/IR
$10,737M	$9,695M	$7,801M	$6,755M
28%	25%	20%	17%

Sensor, Program and Platform Agnostic

…by investing in new products and capabilities

We are deployed on 300+ programs with 25+ Primes

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

RADAR | **EW** | **EO/IR –C4I**

Aegis ballistic missile defense: SPY-1 BMD Radar

- Countering rogue nations' ballistic missile threats
- Highest performance radar processor Application Ready Subsystem
- 19 ship sets booked FY08-11
- $24M booked in FY11, $75M+ booked to date
- Additional 35 ship sets scheduled through GFY16
- AMDR pushout likely
- Additional upside

Mercury's largest single program in production to date

Patriot missile defense: Next generation ground radar

- Services-led design win – Prime outsourcing example
- Sophisticated radar processor Application Ready Subsystem
- Production awards received to date: $36M
  - UAE, Taiwan, Saudi Arabia
- Potential future FMS awards
  - Up to 16 countries
- MEADS funding termination
- Major growth potential beginning in GFY13 with US Army Patriot upgrade

Program in production; FMS and US Army upgrade driving growth

SEWIP Block 2: Countering new emerging peer threats

- Naval surface fleet EW upgrade: 100+ ships
- Delivered best-of-breed EW Application Ready Subsystem
- Moving from EMD phase to LRIP in next 12 months
- Production begins GFY15
- Upside opportunities with Block 1 upgrade and Block 3
- Lockheed and Raytheon partnering on SEWIP Block 3

Strong partnership with Prime driving Mercury content expansion

JCREW I1B1 (3.3): Joint services CIED program of record

Software defined jammer to defeat roadside bombs

- Program currently in EMD (engineering) phase
- Milestone C next official gate. Signifies transition to Low Rate Initial Production (LRIP)
- LRIP and 1st year production funded in GFY12 budget and GFY13 budget request
- JCREW I1B1 program of record in FY13 budget
- US Marine Corps req'ts:
  - Total : 3100 mounted, 790 man portable, 13 fixed sites
  - GFY13 : 1020 mounted, 790 man portable

Expect move from EMD phase into Low Rate Initial Production

Note: Mercury was not involved in prior generations

Gorgon Stare Increment 2

New program win

- Increment 2
  - Total contract potential $31-37M
  - $22M booked Q3 YTD FY12
  - Quick reaction capability; delivery in 18 months
  - New onboard processor and storage for advanced wide area sensors
  - Potential upside: flight systems and spares
- Future Increments to GFY18
  - Processor upgrades
  - Onboard multi-INT fusion
  - PED improvements

Several opportunities for growth over the next 3-6 years

Program growth driver update

Aegis: Ballistic Missile Defense

Well-defined upgrade provides foundational revenue

Patriot: Missile Defense

Potential U.S. Army upgrades beginning in GFY13

SEWIP: Naval Electronic Warfare

LRIP expected to begin GFY13

JCREW 3.3 (I1B1): Counter-IED

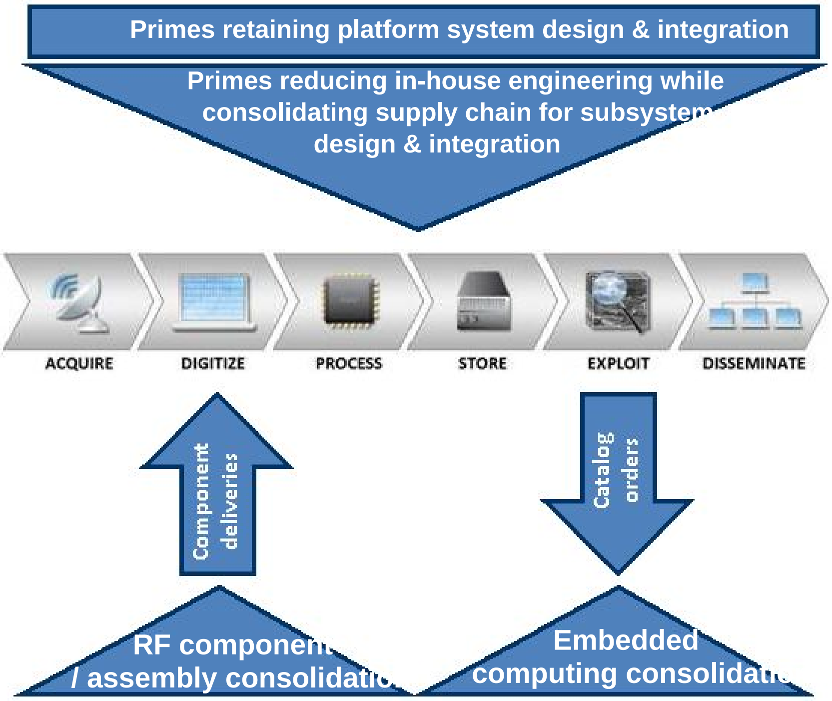
Program expected to transition from EMD phase to LRIP

Gorgon Stare: Wide-area airborne surveillance

Received $22M for Increment 2 development

Outsourcing could substantially increase our market opportunity even with defense spending cuts

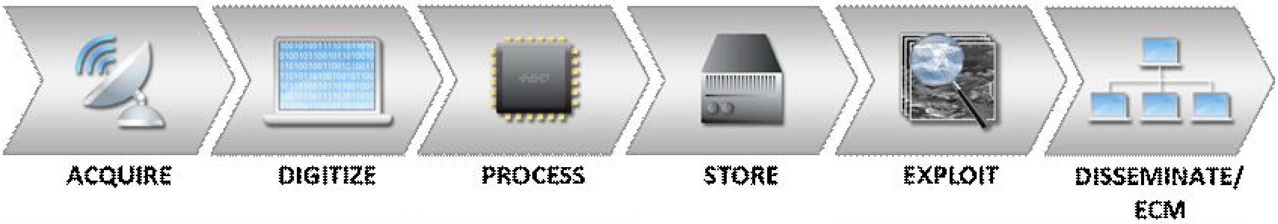
- Reduce risk given firm-fixed price contracts
- Address high-fixed cost operating model
- Increase success rate on new programs and production recompetes
- Develop differentiated, more affordable solutions with fewer internal R&D dollars
- Compress upgrade development and deployment cycles
- Consolidate supply base at subsystem level



Mercury has strategically positioned its business to help

We are developing capabilities organically and are looking to supplement that through acquisitions

ACS and MFS Acquisition Target Areas



RF acquisition targets: RF transmitters / receivers Power amplifiers Synthesizers DRFM	Mission Computing and Embedded Security	Exploitation and Fusion	Tailored feeds directly to field forces or ECM

LINX KOR ELECTRONICS Paragon Dynamics KOR ELECTRONICS

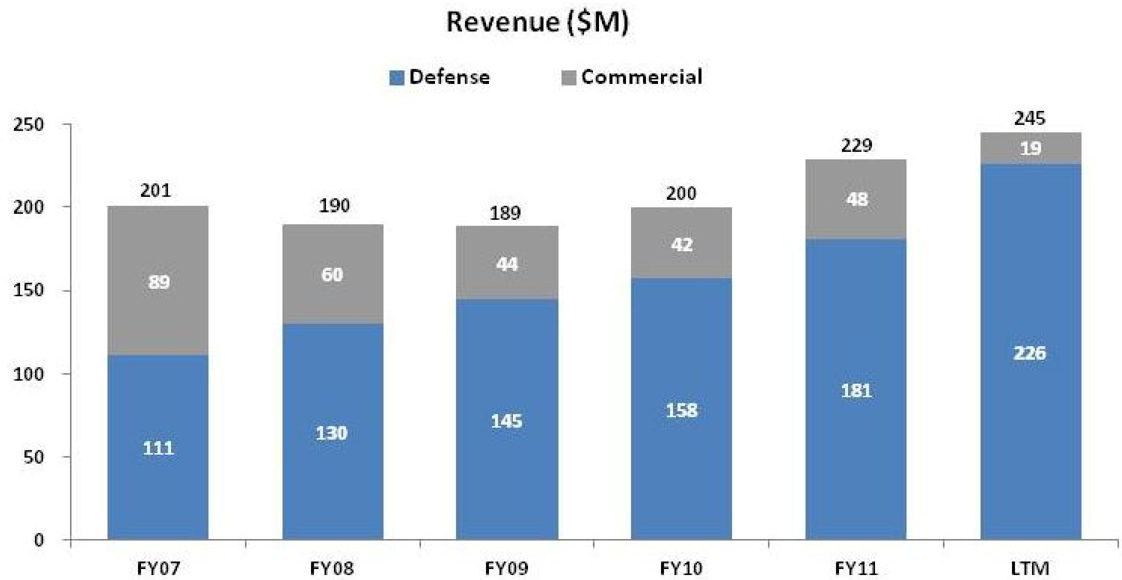
We view our market opportunity as providing end-to-end, open sensor processing subsystems to the Primes

Positioned for growth in a changing industry

- Focused on the right defense market segments
- Well positioned on key programs and platforms
- Capabilities help address today’s and tomorrow’s threats
- Business model aligned with defense procurement reform
- Outsourcing partner to the Primes for sensor subsystems
- Strong defense revenue growth and improved profitability
- Pursuing complementary acquisitions to accelerate growth

Financial Overview

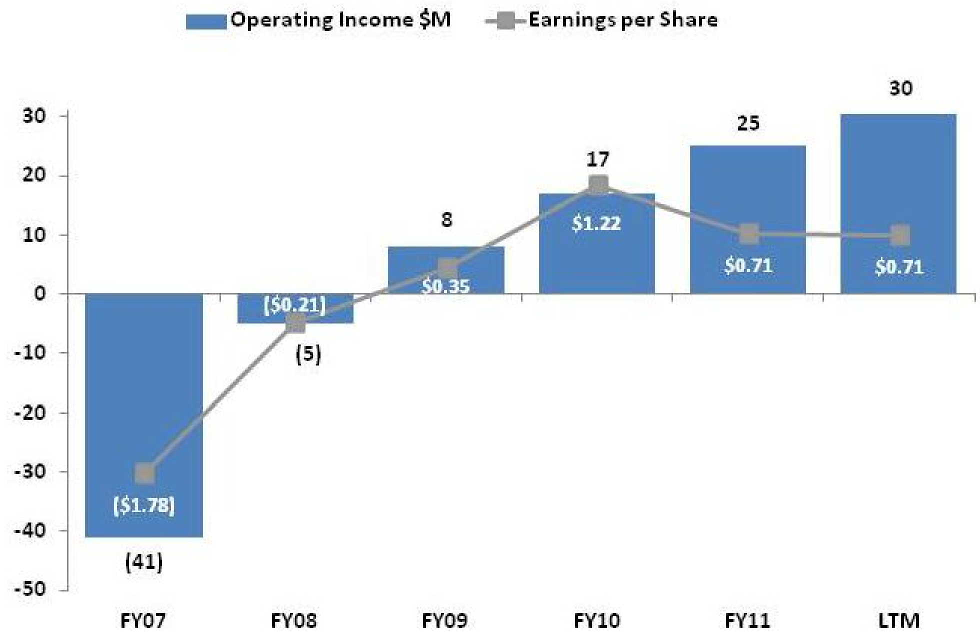
Defense revenue growth accelerating



Notes:
- FY07-10 figures adjusted for discontinued operations.

Defense: 13% CAGR FY07-11

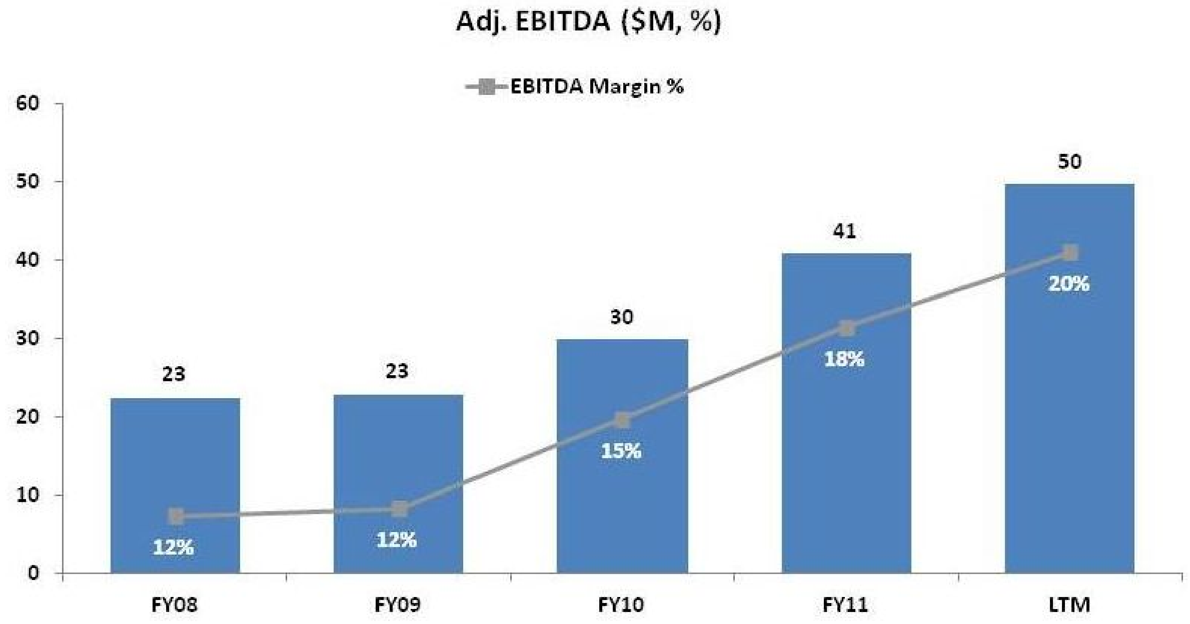
Profitability restored and improving



Notes:

- FY07 figures are as reported in the Company's fiscal 2007 Form 10K and have not been restated for discontinued operations.
- FY08 –FY11 figures are as reported in the Company's fiscal 2011 Form 10K.
- FY10 Earnings per Share of $1.22 were positively influenced by $0.68 from the partial reversal of the valuation allowance against deferred tax assets and an effective FY10 tax rate benefit of approximately 5%.
- FY11 and LTM EPS includes the impact of 5.6M additional shares from our follow-on public stock offering on February 16, 2011.

Adjusted EBITDA above pro forma target

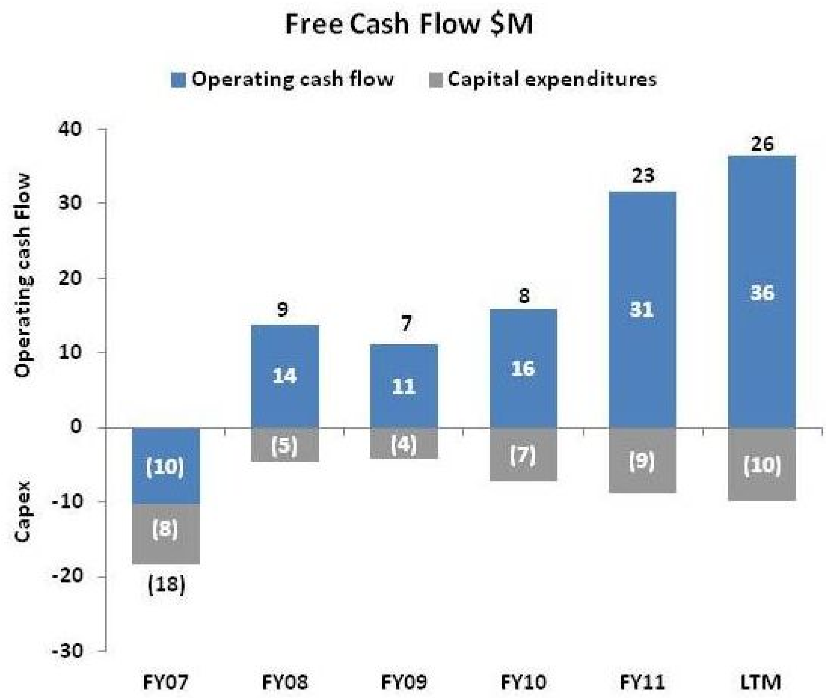


Notes:

- FY08 figures are as reported in the Company's fiscal 2010 Form 10K. FY09-11 figures are as reported in the Company's fiscal 2011 Form 10K.
- Adjusted EBITDA excludes interest income and expense, income taxes, depreciation, amortization of acquired intangible assets, restructuring expense, impairment of long-lived assets, acquisition and other related expenses, and stock-based compensation costs.

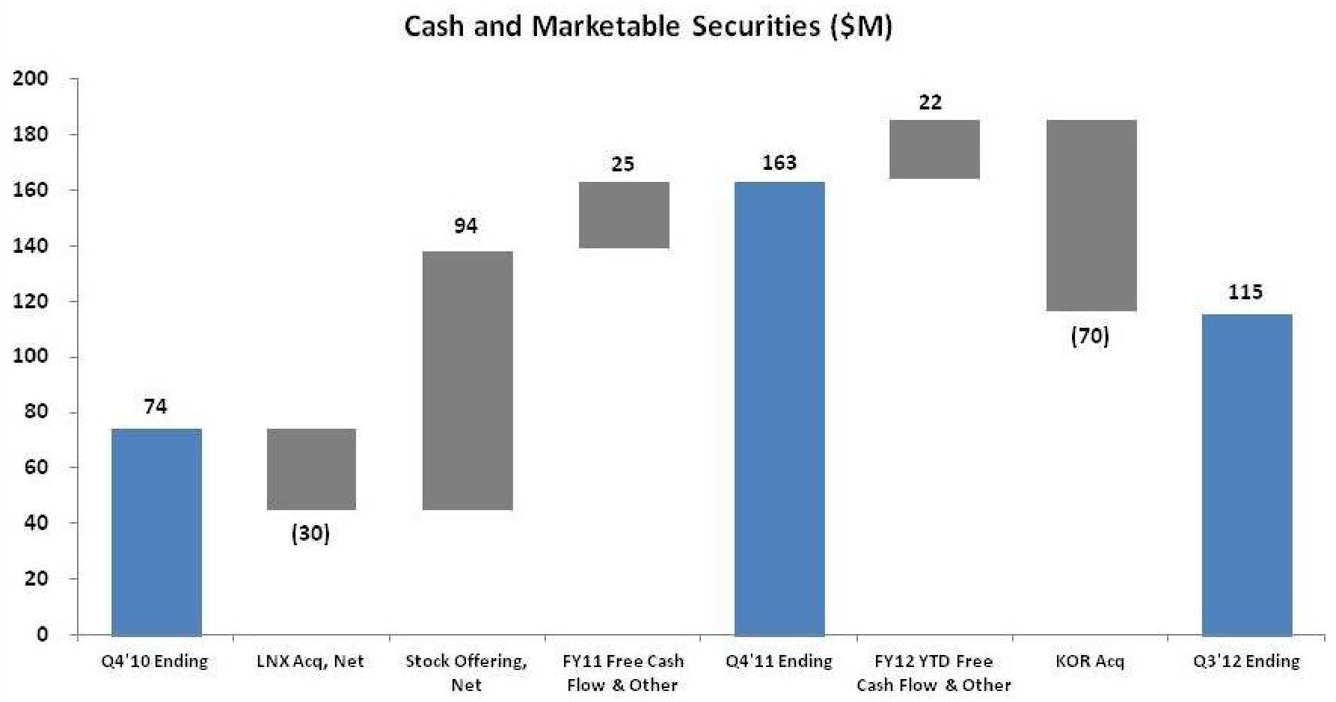
Generating healthy free cash flow from operations

- Engineering and supply chain transformation
  - Engineering methods
  - Investments in DFM
  - Operational efficiencies
  - Reduced lead times
  - Improved cost of quality
  - Outsourced manufacturing
- Efficient working capital platform supports growth



Note:
- Free cash flow is defined as cash provided by operating activities less capital expenditures.

Balance sheet poised for investment
No short and long term debt



Other financing sources available:

- $500M Shelf Registration
- $35M Operating line of credit (no drawdowns)

Performing at target business model

- ACS : MFS LTM revenue split 92% : 8% respectively
- High mix, low volume
- R&D delivering significant added value and returns
- Increased lower margin engineering services and systems integration
- Services-led design wins lead to long-term production subsystem annuity revenues

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

Q3 YTD FY12 year over year comparison (GAAP)

GAAP	Q3 YTD FY12	Q3 YTD FY11	Delta
Total Revenue ($M)	184	167	10%
Defense Revenue ($M)	173	127	36%
Gross Margin % Revenue	57.5%	56.8%	70 bps
Operating Expenses ($M)	82	76	6
Operating Income ($M) % Revenue	24 13.1%	19 11.2%	5 1.9 pts
Adj EBITDA	40	31	9
EPS (Continuing Operations)	$0.56	$0.57	($0.01)
Op Cash Flow ($M)	28	23	5
Bookings Total Backlog ($M) 12-mo Backlog($M)	170 105 95	140 86 70	22% 23% 35%

Notes:
- Q3 YTD FY12 tax rate 33%, Q3 YTD FY11 tax rate 29%

Q4 FY12 guidance

	Q4 FY11 Actual	Quarter Ending June 30, 2012	
		Low	High
Revenue	**$61**	**$60**	**$66**
GAAP EPS (Continuing)	**$0.14**	**$0.04**	**$0.10**
Adj EBITDA	**$10.1**	**$7.0**	**$9.5**
Note -Adj EBITDA Adjustments:			
Net income (Continuing)	**4.3**	**1.3**	**3.0**
Interest (income) expense, net	**0.0**	**0.0**	**0.0**
Income tax (benefit) expense	**2.3**	**0.7**	**1.6**
Depreciation	**1.7**	**2.3**	**2.3**
Amortization of acquired intangible assets	**0.7**	**1.1**	**1.1**
Impairment of long-lived assets	**0.2**	**0.0**	**0.0**
Fair value adjustments from purchase accounting	**(0.4)**	**(0.1)**	**(0.1)**
Stock-based compensation cost	**1.4**	**1.6**	**1.6**
Adj EBITDA	**$10.1**	**$7.0**	**$9.5**

Notes:
- Fiscal 2011 and 2012 EPS includes the impact of 5.6M additional shares from our follow-on public stock offering on February 16, 2011.

FY12 full year financial guidance

- Total revenue growth of 7%–9% ($244–$250 million)
- Defense revenue growth of approximately 30% ($230–$235 million)
- Gross margin of approximately 55%
- GAAP EPS of $0.60 to $0.66 per share
- Adjusted EBITDA above 18% target business model

Guidance: Strong performance track record

Non-GAAP / GAAP		Q1		Q2		Q3		Q4	
		Reported	Guidance	Reported	Guidance	Reported	Guidance	Reported	Guidance
2008	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	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	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	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
2012	Revenue ($M)	49.1	54.0-56.0	68.0	67.0-69.0	67.0	65.0-68.0		60.0-66.0
	EPS ($)	0.09	0.10-0.12	0.30	0.24-0.27	0.17	0.09-0.11		0.04-0.10

Financial summary

- Strong bookings growth and rebuilding backlog
- Defense revenue growth accelerating
- Profitability restored and improving
- Generating healthy free cash flows from operations
- Scalable working capital platform
- Strong balance sheet with no debt
- Performing at target business model





Appendix

Adjusted EBITDA reconciliation

(000'S)	Years Ended June 30, 2008	2009	2010	2011	LTM
Income (loss) from continuing operations	$ (4,437)	$ 7,909	$ 28,069	$ 18,507	$ 21,207
Interest expense (income), net	(3,129)	492	(151)	45	10
Income tax expense (benefit)	3,710	109	(9,377)	8,060	10,802
Depreciation	7,372	5,640	5,147	6,364	7,454
Amortization of acquired intangible assets	5,146	2,414	1,710	1,984	3,336
Restructuring	4,454	1,712	231	—	—
Impairment of long-lived assets	561	—	211	150	150
Acquisition costs and other related expenses	—	—	—	412	768
Fair value adjustments from purchase accounting	—	—	—	(219)	(612)
Stock-based compensation costs	8,848	4,582	4,016	5,580	6,552
Adjusted EBITDA	$ 22,525	$ 22,858	$ 29,856	$ 40,883	$ 49,667

Free cash flow reconciliation

	Years Ended June 30					
	2007	2008	2009	2010	2011	LTM
Cash flows from operating activities	$ (10,313)	$ 13,726	$ 11,199	$ 15,708	$ 31,474	$ 36,316
Capital expenditures	(8,109)	(4,625)	(4,126)	(7,334)	(8,825)	(9,927)
Free cash flow	$ (18,422)	$ 9,101	$ 7,073	$ 8,374	$ 22,649	$ 26,389