Notes on Forward Looking Statements and Non-GAAP Measures

• Comments in this presentation other than statements of historical fact may constitute forward looking statements and are based on Fairchild’s management’s estimates and projections and are subject to various risks and uncertainties

• These risks and uncertainties are described in the Company’s periodic reports and other filings with the Securities and Exchange Commission (see the Risk Factors section) and are available at http://sec.gov and investor.fairchildsemi.com

• Actual results may differ materially from those projected in the forward looking statements

• Some data in this presentation may include non-GAAP measures that we believe provide useful information about the operating performance of our businesses that should be considered by investors in conjunction with GAAP measures that we also provide. You can find a reconciliation of non-GAAP to comparable GAAP measures at the Investor Relations section of our web site at http://investor.fairchildsemi.com

Recent additions to our website at http://investor.fairchildsemi.com

Updated Financials (through Q1 2011, with segment revenue/gross margin breakouts)
• Quarterly Fact Sheet with Q1 2011 highlights
• This investor presentation
Fairchild Overview
<table>
<thead>
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</thead>
<tbody>
<tr>
<td>Mobile Power Switches &amp; Interface</td>
<td>Power Conversion HV MOSFET &amp; IGBT SPM Automotive Opto</td>
<td>Standard discrete &amp; analog</td>
</tr>
<tr>
<td>Signal Conditioning LV MOSFETs Logic</td>
<td>Comprehensive offering of high voltage solutions (&gt;200V)</td>
<td>Comprehensive offering of low voltage solutions (&lt;200V) Essential functions for key customers</td>
</tr>
</tbody>
</table>

Fairchild Today…

Fairchild Semiconductor

2010 Revenue $1.6B
Markets That Drive Our Business

• Wireless Convergence and Energy Efficiency mega-trends

• Power silicon content grows faster than end market sales – premium paid for efficiency

• Segment structure increases our apps knowledge and ability to sell solutions

• Large customers dominate these markets and align well with Fairchild’s strengths in SCM, global presence and wide product breadth
Shift to Industry Leading Customers
Top Tier Customers Drive Sales & Margin Growth

- Significant shift to fast-growing, industry leading customers
- Minimize exposure to low-margin, non-strategic tier 3 customers

Ratio of Total Sales by Tier

Q3 10

- Tier 1 & 2: 79%
- Tier 3: 21%

Q4 04

- Tier 1 & 2: 64%
- Tier 3: 36%

5 Year Revenue CAGR by Tier

- Tier 1 & 2
- Tier 3

- Total
- High Mgn
- Low Mgn
Headwinds to Revenue Growth Subside
Lower Margin Business Has Been Pruned

- Reduced low margin (<25% GM) tail by $150m of quarterly revenue since mid-2005
- Low margin tail now <10% of sales
- Higher margin business is growing well above 15% and now makes up the majority of sales
Double-Digit Sales Growth Enablers
Semiconductor Sales $ Growth - Handsets

- Power management is a critical enabler to increased functionality = high value
- Smartphones contain 3X semi content as feature phones - $35B Semi TAM in 2013
- Move to standard USB and automatic accessory detection shifts more BOM to semis

Source: iSuppli - Aug 2010
Double-Digit Sales Growth Enablers
Semiconductor Sales $ Growth - Computers

- Power management key to battery life - $3B power transistor TAM in 2013
- Power MOSFET performance and integration drive share gains
- Technology leadership in silicon and packages enable strong sales & margin growth

Source: iSuppli - Aug 2010

LV MOSFET 2010 results expected to be up 40% YoY and GM up 400 bps from 2008
Double-Digit Sales Growth Enablers
Unit Sales Growth – Major Home Appliances (MHA)

2008 - 2013 CAGR

Major Home Appliances (units): 3%
Inverter-based Room A/C (units): 14%
Inverter-based Washing Machine (units): 14%
Inverter-based Refrigerators (units): 16%
Inverter-based Dishwasher (units): 39%

MHA - 3% CAGR

Inverter-based appliances - 14 – 39% CAGR

SPM® sales for 2010 expected to increase >60% from 2008

• Conversion to inverter-based motors opens huge new market to our SPMs…just 15% of MHA expected to be inverter-based in 2011 - $2B Semi TAM in 2013
• SPMs provide complete power management solution that reduces risk and decreases time to market…enables our customers to meet/exceed new efficiency standards

Source: IMS - Jul 2010
Double-Digit Sales Growth Enablers
Semiconductor Sales $ Growth – LCD/PDP TVs

Panel TVs - 21% CAGR
Power Semis - 18% CAGR

2007 - 2013 CAGR

LCD/PDP TVs - 21%
Power Discrete - 18%
Power Analog - 18%

Power conversion sales for 2010 expected to be up 11% from 2008

- Power mgmt is a critical enabler for LED backlighting, a key feature in LCD TVs due to higher refresh rates, better color & 3D capability - $5B power semi TAM in 2013
- Power conv analog and small form factor MOSFETs enable efficient & thin designs

Source: iSuppli - Aug 2010
Double-Digit Sales Growth Enablers
Semiconductor Sales $ Growth – Automotive

Power modules used to improve fuel efficiency and increase reliability - $2B power semi TAM in 2013
Fairchild is the leader in supplying power modules for the electronic Power Steering (EPS) market that provides as much as a 10% improvement in fuel efficiency

Auto sales for 2010 expected to be up 36% from 2008

Source: iSuppli - Aug 2010, IMS - Jul 2010
Our SAM Supports Double-Digit Sales Growth

- Power management and wireless convergence continue to grow rapidly
- Our SAM outgrows the end markets significantly due to the higher value our customers place on performance, size and efficiency


More than 60% of Our Q2 2010 Sales support these SAMs – Huge Growth Potential
Mobile, Computing, Consumer & Communications (MCCC) Group Overview
Focus on leadership power efficiency in DC:DC applications
Solutions with increasingly small form factors
Portfolio of products to service OEM’s & ODM’s needs
• Smartphone user experience and energy efficiency driving IC growth

• OEM competition driving differentiation and IC opportunity

• Increasing OEM requirement for broad based IP suppliers

• Quality of supply critical differentiator

• Three of four of the world’s largest SC consumers are now handset OEMs

• Strong Market Growth with 28% SAM CAGR

*Q2 iSuppli Mobile Std Linear+logic+MOSFET 2010-2013 CAGR
Mobile Revenue and IP Growth

The 6 year CAGR is 21% for the signal path and power management focus areas.

The IP portfolio has grown from simple functions 6 years ago to more complex power management and signal path functions today.
Our Customers

Content in most of the Smart Phones at each OEM

- Apple
- HTC
- Huawei
- LG
- Motorola
- Nokia
- BlackBerry
- Samsung
- Sony Ericsson
- ZTE

Content in many handset reference designs

- Broadcom
- Infineon
- Marvell
- MediaTek
- ST Ericsson
- Qualcomm
Focus Areas in Smart Phones

- **Power for CPU Driven Subsystems, IO Power**
  - Transceivers, OVP, Charging, Detection
- **DC/DC for 2/3G PA RF Transceiver DC/DC**
- **WLED Drivers with DC/DC Lighting Management Units**
- **Class A/B, D, G Amplifiers CODECs, Mic. ADC, Subsystems**
- **Tiny Logic Gates, Buffers Micropak2 packaging**
- **Audio, Video, USB Camera, Memory MIPI**
- **IntelliMAX Loadswitches USB Charging, Fuel Gauging**
- **Switching, Video Filtering/Drivers, uSerDes**
- **PLLs, Reset Timers, I2C Control Translators, Sensors**
- **RF Power**
- **Switches**
- **Battery**
- **USB**
- **Power Management IC’s**
- **LED Driver**
- **USB Xcvr**
- **Charger**
- **USB Mux**
- **Digital Mic**
- **MOSFETs**
- **Core Power**
- **Low RDSon, small Packaging**
- **Power for CPU Driven Subsystems, IO Power**
- **Transceivers, OVP, Charging, Detection**
Analog Switches

MIPI / Camera:
• Route & isolate MIPI interface to dual cameras or displays while maintaining signal integrity

Audio Jack:
• Detect and configure for 3 or 4 pole headset
• Route audio to either speakers or headphones
• Switch composite video or MIC to accessory plug

MIPI Switch
Audio Jack Detection
Audio Switch
Processor
DBTV
TV Switch
Power Management
Dual MIC Switch
Sim
RF
Dual SIM Switch
Dual SIM

Source: iSuppli 2010

Mobile Handset Feature Forecast 2010 - 2012

Fairchild Semiconductor is a global leader in innovative Analog Switch solutions designed to route, switch, isolate, protect and detect an array of signals in mobile devices.

Dual Microphone:
• Switch & isolate between two microphones for noise cancellation

Dual SIM:
• Sharing one baseband port with two SIM cards

Music Playback (Audio Jack)
Camera (>3Meg) (MIPI/Camera)
Dual SIM
Dual Microphone

Source: iSuppli 2010

www.fairchildsemi.com
USB Solutions for Handsets

Three out of four mobile handsets utilize a USB Port*

<table>
<thead>
<tr>
<th>Smart Phones</th>
<th>Feature Phones</th>
<th>Low Cost Phones</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="smartphones.png" alt="Smart Phones Image" /></td>
<td><img src="featurephones.png" alt="Feature Phones Image" /></td>
<td><img src="lowcostphones.png" alt="Low Cost Phones Image" /></td>
</tr>
<tr>
<td>239M Handsets in 2010*</td>
<td>706M Handsets in 2010*</td>
<td>328M Handsets in 2010*</td>
</tr>
<tr>
<td>Fairchild Solutions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>▪ USB Accessory Detection</td>
<td>▪ Battery Charger Detection</td>
<td>▪ Switching/Routing</td>
</tr>
<tr>
<td>▪ Battery Charger Detection</td>
<td>▪ Switching/Routing</td>
<td>▪ Handles 1-2 type(s) of media</td>
</tr>
<tr>
<td>▪ Switching/Routing</td>
<td></td>
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</tr>
<tr>
<td>▪ Handles 3 or more types of media (Audio, Video, Data, etc)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>▪ Handles 2-3 types of media</td>
<td></td>
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</tr>
</tbody>
</table>

* Source: iSuppli 2010
Mobile ASSP Solutions

ASSPs Enable Smart Phone Applications

Inclination
Compass
Motion / Acceleration
Temperature
Current & Voltage
Proximity
Ambient Light
Timing

ASSP Solutions

• 33% 3yr CAGR*
• Fast growing, semi custom space
• Reset Timers Series; hardware reset for software lock up
• Temperature Sensors; provide thermal protection
• I/O Level Shifters for I2C, SD Memory and SIM cards
• Clock buffering and distribution
• Baseband / Application Processor I/O expansion
Mobile Audio

- Investment started in 2009 with purchase of Leadis Audio IP and Team
- Focused on proving competitive IP and selection as audio supplier at major handset suppliers

2010 Customer Driven Products Include:

- Class D Speaker Amp w/ Battery Boost for Power Mgt
- Class D and G Audio Subsystem w/ Pop and Click reduction
- Class G Headphone Amp w/ Integrated Buck for Power Mgt

![Diagram](chart.png)

Mobile Audio Focus SAM ($M)

- Dig Mic = Digital Microphone IC
- Sub = Audio Subsystem
- SPA = Speaker Amplifier
- HPA = Headphone Amplifier

Source: Fairchild
Core Power Management

- Low noise regulators for Proximity and accelerometers
- Step-down DC/DC for SD Flash Memory Cards
- Step-Up DC/DC converter of USB-OTG
- Multi-Channel + Mixed Signal for Image sensor modules

- Handset features and usage patterns continue to increase demands on energy efficiency
- Continues to drive adoption of switching DC/DC across a wider range of voltages
- Fast growing High Performance Analog Segment through 2014 (21% CAGR*)

*Q2 2010 iSuppli 2010-2014
Multi-Band RF Power Management

Switching Regulator for RF Saves Power, Extends Battery Life

3G/4G Smart Phone

+ 200 Minutes More Talk Time
+ 140 Minutes More Access Time
34% adoption today to 85% in 2013
Over 40% CAGR

Runs 50% Cooler
Switching Battery Charger ICs

Energy efficient charging reduces charge times of Smart Phones by up to 50%

Linear charging IC (conventional solution)
- 2.5W
- 1.2W
- 4 - 7 Hours

Switching DC/DC based charging IC
- 2.5W
- 2.3W
- FAN5400
- 2 - 3.5 Hours

- 38% adoption today to 85% in 2014
- Over 40% CAGR
Mobile Summary

- An analog business with a history and future of profitable growth

- Smart Phone addressable content continues to expand through adjacent product strategies

- We compete on the quality of our supply chain, manufacturing cost effectiveness, and breadth of IP/product portfolio to solve OEM needs

- Expect to double the business over the next 3-5 years
LV MOSFET Trends

• Process Technology Continues to Drive Cost and Performance

• Packaging Technology Shift Enabled by Process Drives Power Density

• Performance Segments Require Power Density Improvements

• Efficiency Gains are Highly Valued

• Good Market Growth at 8% SAM CAGR

Source: WSTS Fukuoka May 28th 2010 – projection 2010 - 2013
Process Technology Drives Cost and Performance

20% Average Die Size Reduction per Technology Node

Enables:
- Die Cost Reduction (Margin Improvement)
- Smaller Package Footprint (Market Share)
Fairchild PowerTrench® devices deliver the same size advantage from 20V to 150V.
Power Density

Old Approach

2 X D-Pak  130 mm²

2 X SO-8  60 mm²

20A DC/DC

New Approach

2X 5x6 PQFN  60 mm²

2 X 3X3 PQFN  21 mm²

Power Stage  30 mm²
Power Density Improves Over 8X

- **SO-8**
  - $30 \text{ mm}^2$
  - $\Theta_{JA} = 74.2^\circ C/W$
  - $P_d = 56 \text{ mW/mm}^2$

- **Power 56**
  - $30 \text{ mm}^2$
  - $\Theta_{JA} = 48.6^\circ C/W$
  - $P_d = 86 \text{ mW/mm}^2$

- **Power 33**
  - $11 \text{ mm}^2$
  - $\Theta_{JA} = 59.5^\circ C/W$
  - $P_d = 190 \text{ mW/mm}^2$

- **Power 22**
  - $4 \text{ mm}^2$
  - $\Theta_{JA} = 65.8^\circ C/W$
  - $P_d = 475 \text{ mW/mm}^2$

**Transitions**
- Power56 to Power33
- SO8 to Power33
- Power33 to Power22 and Power Stage Duals
MOSFET Power in Notebook Computers

Focus Areas

**Notebook Vcore**
- PowerStage 5x6 Duals 30V
- Power33 NCH 30V sub 3mOhm
- Power56 30VPT8S

**Notebook DC:DC/Battery**
- PowerStage Dual 30V – 3x3, 3x4.5, 5x6
- Power33 NCH 30V 3-30mOhm
- Power56 NCH 30V 3-15mOhm
- Power33 PCH 30V ST3
- Power33 NCH 30V Dual Cool™

**N VDC Notebook/Tablet**
- PowerStage Duals – 25V
- Power33 NCH 25V Dual Cool™
- Power33 PCH 25V ST3
- Power22 NCH 25V PT7
- CSP 20V NCH Zener PT7
- Power33 NCH 100V (LED BLU)

Cost Effective Performance as Small as Possible

LV MOSFET Content $3.05 in 2013
# MOSFET Power in LED LCD TVs

## Focus Areas

### LED BLU: Main Switching FET
- N-CH PT5 100V
- N-CH PT5 150V
- N-CH PT7 200V
- Power33, Power56, SOT23 and DPAK

### LED BLU: Sync MOSFET
- N-CH PT5 100V
- N-CH PT5 150V
- N-CH PT5 200V
- Power33, SOT223 and DPAK

### T-Con Board & Video Board:
- PowerStage Duals – 30V
- Power33 NCH 30V PT7

---

**Efficient and Reliable Performance as Cool as Possible**

LV MOSFET Content $0.68 Today Growing to $1.33 in 2013
MOSFET Power in Power Over Ethernet

Focus Areas

Power Sourcing Equipment Circuit
Isolation switch with wide SOA
SOT223
Power 33

Powered Device Circuit
Isolation switch
SSOT3
SSOT6

Powered Device DC-DC
Primary Switch 150V
Power56, power33, SSOT3, SSOT6,
SO8, DPAK
Synchronous rectifier
30V SO8, SSOT6, power33, power 56

Powered Device Bridge
SSOT3
SO8 Dual
MLP Quad
Power33

High Levels of Reliability as Small as Possible

LV MOSFET Content $0.50 per port
MOSFET Power in Servers

Focus Areas

Server Vcore/DDR
- PowerStage56 25V
- Power33 25V PT8+
- Power56 25V PT7/8+
- Power56/33 Dual Cool
- DrMOS Multi-Chip-Module

Server POLs
- PowerStage56/34/33
- Power33 PT7/8
- Power56 PT7/8
- TinyBuck Integrated solution

Most Efficient Performance as Small as Possible

LV MOSFET content grows from < $0.50 to > $5.00 in 2013
Dual Cool™ vs. DirectFET®

Direct FET

Small Can
7.2mΩ

Medium Can
2.4mΩ

Component Area: 49mm²

Dual Cool™

3x3
7.2mΩ

Component Area: 21.5mm²

3x3
2.4mΩ

Dual Cool is Smaller

Dual Cool is More Efficient

Dual Cool Runs Cooler

1Phase CCM- Heatsink, No Air

Power Efficiency %

Load (A)

MOSFETS: FDMC3020DC 3x3 HS, FDMC2512SDC 3x3 LS
MOSFETS: IRF6710S HS, IRF6795 LS
MOSFETS: FDMC3020DC 3x3 HS, FDMC2502SDC 5x6 LS

Dual Cool 3x3 and 5x6 ramp in 2011
Lead applications are performance computing

DirectFET is a registered trademark of International Rectifier
PowerStage Clip vs. TI Stacked vs. Renesas

Efficiency and Power Loss
12V IN, 1V OUT, 300kHz

- Fairchild
- Renesas
- TI

Efficiency and Power Loss

Power Stage is more efficient

Power Stage low ringing, no snubber

Components Tested:
Fairchild FDMS3600S
Renesas RJK0214
TI CDS86350

Under typical application conditions, Asymmetric duals in 5x6
Market Segment Mix Improves Margin

LV MOSFET Segment Mix

LV MOSFET GM Projection

- Gross margin increases over 3 year horizon
- Mix of performance computing, consumer and communications increases
Low Voltage MOSFET Summary

• Efficiency, Power Density, and Size are Valued in Performance Applications of the Communications, Consumer and Computing Segments

• Process and Package Technology are Key to Leading in These Value Dimensions

• Revenue Growth and Margin Expansion that Outperforms the Low Voltage MOSFET Market
MCCC Mobile Products
Extend Battery Life, Enable Greater Functionality

- MOSFET
- IntelliMAX™
- Building Block Regulators
- ASSP Regulators

- Analog Switches
- USB
- μSerDes™
- Mixed Signal ASSP
Increasing Power Consumption

- **2G**: GSM, GPRS
- **2.75G**: EDGE
- **3G**: UMTS WCDMA TD-SCDMA
- **3.5G**: HSDPA HSPA
- **Pre 4G**: WiMax / WiFi WiBro
- **4G**: LTE

**DATA RATE (bps)**
- **9.6k**
- **56k**
- **180k**
- **14Mbps 384K**
- **70M**
- **172M**

**Applications**
- **VOICE**
  - SMS
- **Internet**
  - Browsing
  - Email
- **Video call**
  - Video Download
  - Interactive Gaming
- **Video Conference**
  - Video Broadcast
  - VOIP
- **HDTV**
  - Multiview Video
  - Digital TV

**Talk / Connection time**
- **10hr**
- **5hr**
- **2:30hr**
- **1:00hr**
- **?hr**
Mobile Handset Targeted Subsystems

FAIRCHILD FOCUS: Distributed Signal Path Subsystems and Power

Distributed Architecture Drivers:
- Dissimilar Process Technology
- Dissimilar IC lifecycles
- Optimized power consumption/efficiency
- Improved Time to Market (modularity)
- Differentiation (feature sets and user experience)
Battery Life in Smartphones

**Bridging the energy gap:**

- Higher energy density batteries (new Chemistries)
- Optimized usage of features (HW & SW)
- **More efficient conversion of battery power**
- Lower power consuming components

- Only 5 – 6.4 hrs of 3G talk time for leading smartphones
- Battery life gates user experience
- All 4 phones use a similar battery with a capacity of 1400mAh
- More functions...same battery form factor
Fairchild’s Mobile DC/DC Products

Battery Management
- Switching Chargers

Lighting
- LCD back lighting
- AMOLED
- LED Flash

RF Power Management
- RF DC/DC microPMIC RF subsystem

Core Power
- DC/DC converters for digital cores PMICs

Efficient DC/DC Conversion = Longer Battery Life

www.fairchildsemi.com
Mobile Power Solutions

We strive for excellence in electrical performance:

- Ultra Low standby current
- Highest Efficiency
- Fast transient response
- Low EMI
- High precision regulation
- Digital control
Mobile Subsystem Capabilities

USB
- Accessory Detection
- Switches
- Transceivers (Std, full, high)
- Over Voltage Protection (OVP)
- Charging

Audio
- Class D Amp
- Class G Amp
- Class A/B Amp
- Digital Mic. IC
- Switches

Video
- Filter/Drivers
- Switches
- MIPI Switch
- uSerDes
- Camera Switches

ASSP
- PLL
- Tiny Logic
- Reset Timer
- Memory Switch
- GPIO Expanders
- SIMM Card Switch
- Translators
Mobile USB

Maximizing USB port functionality in mobile electronics

- Solutions for the full USB signal path
  - USB Switches
  - Multimedia Switches
  - Accessory Detection
  - Transceivers
- Enable USB port sharing for data, audio, video, and charging
- Reduce external components
- Power savings with low power modes
- Ultra-small packaging

USB Transceivers
Maximizes design flexibility and assures USB compliance.

USB Accessory Detection
Detect an accessory type for automatic application routing.
• Leading silicon and package technology enables optimum size, performance and profitability

• Move to next-gen packages lower costs and improves performance

• Technology leverage is greater than scale leverage
Form Factor Transition

A once every ten year event:
Leaded (SO) to Leadless (QFN) conversion

Notebook Footprint Transitions

- SO-8
- Power56
- Power33
- Other Packages

Fairchild is investing in PQFN capacity and is ahead of the transition
Fairchild product portfolio is positioned for the transition
A package portfolio to drive mobile computing transitions!

- Power56 to Power33
- SO8 to Power33
- Power33 to Power22 and PowerStage Duals

Form Factors for Singles:

- **Power 22**
  - $\Theta_{JA} = 65.8 ^\circ$C/W
  - $P_d = 475$ mW/mm²

- **Power 33**
  - $\Theta_{JA} = 59.5 ^\circ$C/W
  - $P_d = 190$ mW/mm²

- **Power 56**
  - $\Theta_{JA} = 48.6 ^\circ$C/W
  - $P_d = 86$ mW/mm²

- **Reference: SO-8**
  - $\Theta_{JA} = 74.2 ^\circ$C/W
  - $P_d = 56$ mW/mm²
Infineon Partnership

Standardize Power Packages in order to minimize the amount of “unique” packages going into the Market

Enable end customers to shift into smaller Form Factors
Power Trench® Dual Cool™

25A Control and Synchronous Solutions

- S 7.2mΩ
- M 2.4mΩ
  - Component Area: 49mm²
  - Component Area: 21.5mm²

Dual Cool™ 3x3 7.2mΩ

30A Control and Synchronous Solutions

- M
- Dual Cool™ 3x3 7.2mΩ
- Dual Cool™ 5x6 1.2mΩ
  - Component Area: 62mm²
  - Component Area: 41mm²
Shifting the Form Factor

Utility SO-8’s to Dual 3x3’s

2 x SO-8
60 mm²

Tj = 102.8 °C

MLP 3x3 Dual
9 mm²

Tj = 95.2 °C
Fairchild Integrated PowerStage Solutions
High Side and Low MOSFETs in a Single Package

25A Buck Converter Solution
- Standard Solution: 90mm²
- PowerStage Solution: 30mm²
  Better Performance, 3X Smaller Footprint

5A Buck Converter Solution
- Standard Solution: 60mm²
- PowerStage Solution: 9mm²
  Better Performance, 7X Smaller Footprint
Summary

• Focused R&D investment in mobile analog

• Gaining share in mobile analog…voltage regulator sales up 5% in 2009

• Proliferating HF voltage regulator designs at multiple customers

• Customers moving to standard USB pin outs drive strong analog switch sales growth

• Leading silicon and package technology enable profitable growth of LV MOSFETs
Power Conversion, Industrial & Auto (PCIA) Group Overview
PCIA Business Overview

2010 - Sales

What Drives Our Business?

- Focus on improving the efficiency of customer’s applications
- Provide value through innovative Power Solutions
- Leverage our expertise in Discrete Technology, IC technology and Packaging Technology
Regulation and Policy Drives our Markets

- Eco-friendly policies are moving the market WW
  - Energy Labeling, Energy Efficiency
  - Adoption of inverters in motor control applications
  - Change from traditional lighting to LED, CFL
- Regional Examples:
  - EU: EPBD (Energy Performance of Building Directive): All new buildings should consume zero energy from 2019
  - EU: New Energy Labeling system
    - For Eco-Design: <B grade prohibited for sale after July 2010
    - Only A-20% & A-40% products can be sold after July, 2013/14
  - US: Energy Star strengthening (eg, SEER12 $\rightarrow$ SEER16 for A/C)
  - China: New Energy Labeling System from June, 2010
  - Japan: ‘Top Runner’ program with APF since 2006
- Clean energy and IT advances create whole new markets
  - Renewable energy; PV Inverter
  - Smart Grid; E-Vehicle Charger and Smart Metering
Inverter Driven Motors

- Brushless DC (BLDC) motors
  - Improved performance and efficiency
    - Lowers total cost of ownership
  - Reduced size = raw material savings
- Fairchild is well positioned to help our customers capitalize on the move from Mechanical control to Electronic solutions (inverters)
  - Our Smart Power Modules facilitate this transition easing the design requirements
  - Our IC’s can simplify the control of these motors

<table>
<thead>
<tr>
<th></th>
<th>AC</th>
<th>BLDC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size/Weight</td>
<td>100%</td>
<td>70% of AC @1HP 55% of AC @2HP</td>
</tr>
<tr>
<td>Raw material cost</td>
<td>AC &gt;= BLDC driven by size/weight</td>
<td></td>
</tr>
<tr>
<td>Efficiency</td>
<td>40~45%</td>
<td>70~75%</td>
</tr>
<tr>
<td>Speed control</td>
<td>Difficult</td>
<td>Easy &amp; Linear</td>
</tr>
<tr>
<td>Accuracy of Speed</td>
<td>3~5%</td>
<td>0.5%</td>
</tr>
<tr>
<td>Torque control</td>
<td>Poor</td>
<td>Controllable</td>
</tr>
</tbody>
</table>
Induction Motor vs. BLDC Motor

**AC Induction motor**
- The induction motor is also known as a *rotating transformer*.
- Power is supplied to the **rotor** by electromagnetic induction.
  - This method of transferring power to the rotor lowers the efficiency.
- The motor turns because of the magnetic force exerted between a stationary electromagnet (stator) and the rotating electromagnet (rotor).
  - The phase difference requires greater current and current losses to achieve power.
- The stator is also powered by AC, the low frequency (50/60 Hz) requires a bigger magnetic-core and more windings to couple the current from stator to rotor.

**BLDC motor**
- A Brushless DC motor has permanent magnets on the rotor which eliminates the problems of inducing current to the moving armature.
- An IC controller keeps the stator current in phase with the permanent magnets of the rotor.
  - This requires less current to turn the motor with the same output force.
  - Resulting in greater efficiency and smaller size.

### Power loss

<table>
<thead>
<tr>
<th>Power loss</th>
<th>Induction Motor</th>
<th>BLDC Motor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacitor loss (phase shift)</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Controller loss</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Stator copper loss</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Stator iron loss</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Rotor copper loss</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Rotor iron loss</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Mechanical loss</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Harmonic voltage &amp; current loss</td>
<td>High</td>
<td>Low</td>
</tr>
</tbody>
</table>

**VAC:** 110V/220V; 50/60 Hz

The speed and efficiency of AC induction motor is restricted by its power source (the line voltage and frequency). The power source of BLDC motor is controlled by semiconductor devices, which can achieve high efficiency at various speed and output load.
“Inverterization” Drives SAM Expansion in Appliances

M Units

- Washing machines, refrigerators, air conditioners all require inverter driven motors to meet energy savings regulations
- Content: $2 - $20/system
- Our SPM solutions:
  - Reduce total system cost
  - Reduce development time
  - Optimize performance
  - Provide higher reliability
  - Reduce board space
- In 2009, SPM revenue remained flat to 2008
- Expect SPM revenue to more than double from 2010 to 2012

Source: IMS, iSuppli, Fuji Chimera, Darnell, WSTS etc

TAM growth of end markets is modest, but Inverter % grows rapidly
Fairchild Solutions for BLDC Motor Control

Fairchild provides all semiconductor products required for driving BLDC Motor
Content $3.20-$22.50
What is a Smart Power Module (SPM®)?

Expertise to integrate analog, discrete and high voltage technology together

Integration of discrete components

IGBTs/FRFETs  HVICs  LVIC  Peripherals
-Bootstrap diodes
-NTC thermistor

SPM’s built-in HVIC and LVIC with protection circuit

Facilitates Manufacturing

SPM integration, enhances productivity while simplifying manufacturing

Enhances Protection

Optimizes Design

SPM optimizes driving characteristics for built-in power devices

Summary

- Reduced total system cost
- Reduced development time
- Easy management
- Optimized control flexibility
- Higher reliability
- Board space savings

www.fairchildsemi.com
Application: Pump Drive

- Small overall pump growth but regulations in EU will push adoption of BLDC inverter
- Working with many of the world’s leading customers
- Broad portfolio of SPM products to address many needs
  - SPM5 → Circulation pump
  - SPM4 → 2ø General pump
  - 1200V SPM2 → 3ø General pump
- Content $
  - Circulation pump : $2.5 ~ $5.0
  - 2ø General pump : $18 ~ $36
  - 3ø General pump : $27 ~ $50
Application: Fan Motors

- In fans, like appliances, BLDC motor usage is rapidly outpacing traditional AC motors
- We provide both the IC control and power train
- Our SPM solutions outperform IGBT based one-chip solutions
  - MOSFET has superior efficiency in major fan motor area
  - MOSFET has superior ruggedness (10 times longer short circuit time)
- Our IC solutions provide customers with a simple way to implement control
- BOM$ (40W ~ 70W fan motor)
  - Module(SPM5) $1.6 ~ $3.0
  - Motor control IC $0.7 ~ $1.4
The global penetration rate of inverter based Microwave Ovens (MWO) was estimated to be just over 10% in 2005
  • Adoption of inverter technology for MWO will improve the efficiency and the performance of MWO
  • The share of inverter based MWO is projected to grow to 40 ~ 50%
Chinese manufactures start to design Induction Heated (IH) rice cookers as the demand of multifunction capabilities increase
Energy Efficiency labeling program in Asia will also drive the market growth of IH rice cooker and inverter based MWO
**Working Principle of IH Cooker**

- **Electromagnetic Induction + Skin Effect + Heat generation in cooking vessel**

- **Conventional Heating Methods**
  *Cooking vessel is heated though thermal conduction or radiation from heat source including combustion of gas, hotplate with heating coil and thermal radiation from Halogan. So there is some amount of thermal energy loss due to conduction or convection during thermal energy transfer from heating source.*

- **Induction Heating Methods**
  *Only electromagnetic energy is transferred to cooking vessel from Induction cooker, so there is no thermal energy transfer resulting in no thermal energy loss during the process. All the transferred electromagnetic energy is used to heat the cooking vessel itself.*
Induction Heating Energy Savings

<table>
<thead>
<tr>
<th>Cooking Method</th>
<th>Efficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Induction</td>
<td>90%</td>
</tr>
<tr>
<td>Halogen</td>
<td>58%</td>
</tr>
<tr>
<td>Electric</td>
<td>47%</td>
</tr>
<tr>
<td>Gas</td>
<td>40%</td>
</tr>
</tbody>
</table>

Cost of heating ½ litre of water from 20°C to 95°C

Power Consumption for heating ½ litre of water from 20°C to 95°C
Application: Induction Heating & Microwave Oven

- Energy Savings and increased functionality driving adoption of inverters in cooking applications
  - Particularly strong in Asia and EU
- FCS provide a broad family of IGBT’s and Drivers for these applications
- Content:
  - IH cooktop:
    - 8 x 600V IGBT or 4 x 1200V IGBT
    - $3.70 ~ $7.60/system
  - IH tabletop:
    - 1200V IGBT
    - $0.60 ~ $0.95/system
  - MWO:
    - 2 x 600V IGBT or 1-2 1000V IGBT,
    - $0.85 ~ $1.6/system
  - Rice Cooker:
    - 1000V IGBT or 1200V IGBT,
    - $0.85 ~ $1.90/system
- Key Customers Include: BSH Balay, Fagor, Midea, Fushibao, Panasonic, Hitachi, Cuckoo

TAM CAGR of 7% 2010-2015
SAM CAGR of 11% 2010-2015
World Class Standby Power

Why is this important?

• Current specs for cell phone chargers require <500mW under standby conditions
• Most chargers have standby power in the range of 30-150mW
• FCS has launched a <10mW solution
• Typical chargers are in standby >20 hours every day
• More than 1B chargers are sold annually

Energy Rating System:

Most chargers are rated 4-stars now
Smart Phone Chargers

- Smart Phones require increased power to drive additional performance
  - 5W+ needed from charger
- FCS controllers provide a unique feature set:
  - Best-in-class standby power
  - Accurate current and voltage regulation
  - Reduced component count
- Content up to $0.40 per charger
Application: High Efficiency Computing and Consumer - World Class Standby Power

- **Std by of LCD TV/ LED TV**: PowerSwitch which meets PC 2013 EuP <0.5W@0.25W w/o external circuitry
- **Std by of PC**: Green Mode PWM – only design for NPB adapter w/ <30mW@ no load
- **NB**: Green Mode PWM – best combination of peak power and standby <30mW@ no load
- **LCD/LED Monitor**: Green Mode PWM - Best standby power performance <100mW@25mW
- **Printer**: Broad Portfolio of patents filed to secure our power saving leading position
Application: <75W Power

Strong Market Acceptance of our <75W solutions driven by our low load power and our high efficiency

Adoption drivers:
- Power Saving
- Peak power management (printer)
- Rich functionality
- Service support

Key Design in:
- NB: Acer, Dell, HP, Lenovo, Asus
- LCD Monitor: AOC, Innolux, LG
- Printer: HP, Samsung
- Game: Wii

Content ranges from $0.16 - $1.1
Application: High efficiency DT/NB Power Supplies

- Computing market continues to drive towards higher efficiency at full load while minimizing power at low loads
- FCS controllers provide a unique feature set:
  - Leading Patented Power Saving Technology
  - Higher efficiency
  - Reduced component count
  - Easy to design
- Content:
  - $1.50-$2.00 per PC
  - $0.65-$1.20 per NB adapter
Application: +75W NB Adapter – Multiple Solutions Available

- **PFC + QR combo**
  - Content: $0.9~$1.2
  - Next gen of NB adaptor solutions to meet 92%+ efficiency
- **High Side Driver**
  - High integration provides cost effective design
  - Wider power range 75W~250W
  - Allows for very slim design
- **Syn. Rectifier Controller**
  - Content: $0.65~$0.8
  - Current mainstream solution for NB adaptors
  - Meets 90%+ efficiency, high integration, 75W~150W
Application: PC Gold

- Content: $1.5~$2.0
- Multiple sockets necessary to meet High efficiency necessary for 80+ gold
- Low standby power to meet 2013 EuP lot 6 regulation: <0.5W@0.2W
Automotive Power Solutions

Robust Auto Solutions for energy efficient applications

- Engine Management
  - Ignition, Glow Plug
  - Injector control and supply
- HID Lighting
- Engine Cooling
- Transmission and Gearbox
- Electric pumps (water, fuel, oil)
- DC/DC in HEV / EV
- Braking (ABS, ESC)
- Electric Power Steering
- El. Parking Brake
(HPS) Purely hydraulic power steering
Pump mechanically attached to the engine. Pump power output proportional to RPM. Pump must satisfy assistance at min RPM, thus at high RPM energy is wasted.

EHPS
Pump mounted locally
Pump powered by an electrical motor only upon demand

EPS
No Pump, no hydraulic fluid. An electrical motor provides assistance upon demand.
Application: Automotive Power Modules for Electric Power Steering

- EPS/EHPS:
  - Saves fuel (up to 7%)
  - Improves performance
  - Simplifies mechanical design
  Increasingly adopted in new vehicles - conventional as well as EV/Hybrid

- APM Modules help to:
  - Optimize power output
  - Improve reliability
  - Ease design through integration of components
  - Ease installation due to compact design
Application: Automotive Power Modules for EPS

- $12 to $25 per system / vehicle
- **2009:** Fairchild sold modules for 300k vehicles
- **2010:** Modules for 900k vehicles will be sold by end of the year
  - 3 platforms and 5 car models
- **Outlook 2012:** 2-3M Fairchild APM modules
  - 9 platforms with 20 car models will be in production by end 2012
- Other hydraulic systems are all potential opportunities
Application: Automotive IGBTs for Ignition Systems

- Fairchild supports the full portfolio of IGBTs for Ignition systems

- **Fairchild Ignition IGBT products:**
  - Improve thermal management in a reduced footprint
  - Facilitate high system reliability
  - Best in class energy handling capability
  - Simplify design
  - Improve fuel efficiency

**Fairchild is the number one supplier across all ignition architectures, from “Coil on Plug” to advanced multispark “Switch on Plug” systems**
**Application: Automotive IGBTs for Ignition Systems**

- **Strong growth:**
  - **2009:** 61Mu/year (Y-on-Y growth)
  - **Forecast 2010:** 94Mu/year
  - **2012:** targeting > 110Mu/year

- **Content:** $2 to $10 for a 4 cylinder gasoline vehicle

- **Further growth will be fueled by:**
  - New technologies allowing for reduced die size hence smaller packages
  - New Smart Ignition and Ignitor Module products

**EcoSPARK® delivers benchmark energy capability per unit area**

**Ignition IGBT Sales History**

- 2005 – 2010 CAGR 22%

<table>
<thead>
<tr>
<th>Calendar Year</th>
<th>Yearly Units (In Mu)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>20,000</td>
</tr>
<tr>
<td>2001</td>
<td>30,000</td>
</tr>
<tr>
<td>2002</td>
<td>40,000</td>
</tr>
<tr>
<td>2003</td>
<td>50,000</td>
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<td>2004</td>
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<td>2007</td>
<td>90,000</td>
</tr>
<tr>
<td>2008</td>
<td>100,000</td>
</tr>
<tr>
<td>2009</td>
<td>110,000</td>
</tr>
<tr>
<td>2010</td>
<td>120,000</td>
</tr>
</tbody>
</table>
PCIA Summary

• PCIA are in a “Target Rich” environment
  • While many of our end markets have single digit TAM growth…
  • …Energy efficiency is driving double digit SAM growth.

• Our technology should allow us to take significant market positions
  • We have a unique combination of IC, Discrete and Packaging capabilities to create value added products
Finance Overview
Sales were $413m, up 4% QoQ and 9% YoY…demand was in line with expectations with the exception of weaker computing due to Intel chipset issues that impacted February demand…orders rebounded in March

PCIA sales were up 9% QoQ due to strong demand in industrial, appliance and auto markets…MCCC up 1% QoQ in what is typically the weakest quarter for their end markets…outperformance was due to market share gains

Adjusted gross margin was 36.9%, down 20 bps QoQ and up 440 bps YoY, due primarily to improved product mix and higher factory utilization

Distribution channel inventory increased to 8.5 weeks…restocked MOSFETs ahead of typical strong demand in Q2 & Q3

Internal inventory increased 4% in dollars to hold at 83 days

Generated $22m in free cash flow (cash from operations – capex)

Paid $17m for TranSiC acquisition…net cash positive by record $137m…Cash & securities of $457m at the end of Q1

Pricing remained better than typical at down <1% QoQ

Utilization increased back to low-90’s…MCCC lead times at normal levels, PCIA lead times remain extended due to strong demand and high backlog levels
Q2 Forward Guidance

• Sales expected to be $425 – 435m…current scheduled backlog covers this range
• Gross margin expected to be 37.0 – 37.5%
• R&D and SG&A forecast at $96 – 98m due to higher R&D and TranSiC opex
• Net interest expense expected at $2m
• Adjusted tax rate forecast to be between 15% +/-3%
2010 Financial Records

Gross Margin %

- Q3'00: 36.5%
- Q4'10: 37.1%

Free Cash Flow

- 2000: $79
- 2009: $129
- 2010: $175

R&D "Investment"

- 2000: $84
- 2010: $120

Net Cash

- 2000: $(303)
- 2001: $(634)
- 2010: $114
2010 Financial Records

Return on Investment Capital - ROIC

- 2000 - 2005 Avg: 5.9%
- 2006 - 2009 Avg: 4.6%
- 2010: 10.3%

Return on Equity - ROE

- 2000 - 2005 Avg: 8.8%
- 2006 - 2009 Avg: 6.9%
- 2010: 16.4%

Channel Inventory

- 2004: 15
- 2007: 12
- 2010: 8
Adjusted Revenue & GM%
Adjusted EPS

Includes Equity Comp

Adjusted EPS $
### Improving Financial Performance

**Focus On Sustainable & Consistent Progress**

<table>
<thead>
<tr>
<th>Metric</th>
<th>Old FCS</th>
<th>FCS Now</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue</td>
<td></td>
<td></td>
<td>Disciplined SCM &amp; asset mgmt coupled with less mix out headwinds</td>
</tr>
<tr>
<td>Pricing</td>
<td></td>
<td></td>
<td>Product mix drives more stable pricing</td>
</tr>
<tr>
<td>GM</td>
<td></td>
<td></td>
<td>Product mix and cost tailwinds drive sustained improvements</td>
</tr>
<tr>
<td>OM</td>
<td></td>
<td></td>
<td>Tight Opex cost control</td>
</tr>
<tr>
<td>Inventory</td>
<td></td>
<td></td>
<td>Constantly challenging ourselves to operate with less total inventory</td>
</tr>
<tr>
<td>Capex</td>
<td></td>
<td></td>
<td>Capex target at 6 – 8% of sales</td>
</tr>
<tr>
<td>FCF</td>
<td></td>
<td></td>
<td>Consistent cash generation</td>
</tr>
</tbody>
</table>

**Boom/Bust Commodity Mentality**

**Improved Product Mix & Disciplined Mgmt Drives Consistent Results**
Factors Driving Future Gross Margin Expansion

- Accelerate the development of new products that offer higher value add to our customers
- Leverage current manufacturing footprint through existing factory consolidation plan and continued 8” wafer conversions
- Continued proliferation of lean manufacturing efforts throughout the organization
- Pricing management through effective inventory and product life cycle management
- Effective management of capital expenditures
  - Leverage bulk purchasing opportunities
  - Continually raise the acceptance threshold for new projects

<table>
<thead>
<tr>
<th>Factors</th>
<th>BPS Expansion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product Mix</td>
<td>250 – 300</td>
</tr>
<tr>
<td>Cost</td>
<td>100 – 150</td>
</tr>
<tr>
<td>MFG Optimization</td>
<td>100 – 150</td>
</tr>
</tbody>
</table>
Balance Sheet Improvement
Disciplined Asset Management

• Q1 balance sheet is strongest in the history of the company:
  • Cash and investments exceed debt by record $137m
  • Debt at lowest level in company history at $320m
  • Internal inventory remains very lean at 83 DOI
  • DSO at very low 34 days
  • Days of payables at 54 days

• Paid down $152m of debt in 2010
• Generated record $175m FCF in 2010 and $22m in Q1 2011
• Primary focus remains investing in our business
  • Small MEMS acquisition in Q4
  • Small SiC acquisition in Q1
  • Capex forecast at 10 - 12% of sales in 2011 to support higher sales, especially in our PCIA high voltage technologies
Fairchild Inventory Trends
Tight Supply Chain Control Maintains Very Lean Inventory

Higher ratio of A to C runners enables Fairchild to meet customers needs at historically lean inventory levels.
Free Cash Flow
4 Qtr Rolling FCF % Revenue
Net Debt & Interest Trend

Cash exceeds debt for first time in our history!
Why Fairchild is Winning

Focus on Large, Industry-Leading Customers in Fast-Growing Markets

World-class SCM and WW Reach Make Fairchild a Good Fit in the Top 3 – 5 Supplier EcoSystem

Disciplined SCM, Capex & Asset Mgmt Generates Higher ROI & Cashflow

Great Technology & IP Creates Higher Barriers and Strong Growth in Target Margin Band

Base Band and Application Processor
PMIC
Memory
Display
Sub Display
LMU
Camera
Audio
Data
Video
Display & Camera
"uSerDes
Signal Path
Subsystems
GPS
Power
Subsystems
LMU
DC:DC
RF
SD card
HDMI
Camera
DC:DC
Microphone
Power
PMIC

MLP Duals

SPMs

Dual Cool™