

STMICROELECTRONICS NV
Form 6-K
June 07, 2010

UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 6-K

REPORT OF FOREIGN PRIVATE ISSUER
PURSUANT TO RULE 13a-16 OR 15d-16 UNDER
THE SECURITIES EXCHANGE ACT OF 1934

Report on Form 6-K dated June 4, 2010

Commission File Number: 1-13546

STMicroelectronics N.V.
(Name of Registrant)

39, Chemin du Champ-des-Filles
1228 Plan-les-Ouates, Geneva, Switzerland

(Address of Principal Executive Offices)

Indicate by check mark whether the registrant files or will file annual reports under cover of Form 20-F or Form 40-F.

Form 20-F Q

Form 40-F E

Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(1):

Yes E

No Q

Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(7):

Yes E

No Q

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Indicate by check mark whether the registrant by furnishing the information contained in this form is also thereby furnishing the information to the Commission pursuant to Rule 12g3-2(b) under the Securities Exchange Act of 1934.

Yes

No

If "Yes" is marked, indicate below the file number assigned to the registrant in connection with Rule 12g3-2(b): 82-

Enclosure: A presentation prepared by STMicroelectronics with respect to its Field Day at its Field Day held in London, England on June 3, 2010.

Field Trip 2010
London, June 3

Welcome & Introduction

Tait Sorensen
Director - Investor Relations

Field Trip Agenda

Time Presentation Speaker

10:00 am Welcome & Introduction T. Sorensen

10:05 Company Strategy & Vision C. Bozotti

10:25 ST Business & Operations A. Dutheil

10:45 Financial Performance & Roadmap C. Ferro

11:05 Sustainable Technology & Leadership J-M. Chery

11:25 Q&A Panel C. Bozotti/A. Dutheil/C. Ferro/J-M. Chery

11:50 BREAK

12:00pm Multimedia Convergence & ACCI Sector Overview P. Lambinet

12:20 IMS Overview & Advanced Analog & Smart Power C. Papa

12:40 ST-Ericsson: Towards Transformation G. Delfassy

1:00 Q&A Panel C. Bozotti/P. Lambinet/C. Papa /G. Delfassy

1:30 LUNCH

2:30 Breakout Sessions

5:00 - 6:30 Reception

Field Trip Agenda - Breakout Sessions

Ballroom
Ground Floor
Mirror Room
Ground Floor
St. James
6th Floor
Clarence
6th Floor
Boardroom
6th Floor
Kensington
6th Floor
2:30 - 3:00 ST-Ericsson Home
Entertainment Automotive MCUs
3:00 - 3:30 ST-Ericsson Automotive Americas MEMS
3:30 - 4:00 ST-Ericsson Home
Entertainment
Computer &
Networking MCUs
4:00 - 4:30 Computer &
Networking Automotive Americas MEMS
4:30 - 5:00 Home
Entertainment
Computer &
Networking Americas Power & Smart
Power
5:00 Reception - Ballroom Reception Area

- o Americas: The Land of Opportunity (R. Krysiak)
 - o Automotive (P. Grimme)
 - o Computer & Networking (GL Bertino)
 - o Home Entertainment (P. Lambinet)
 - o MCUs (C. Dardanne)
 - o MEMS & Adv. Analog (B. Vigna)
 - o Power & Smart Power (M. Lo Presti)
 - o ST-Ericsson (P. Langlois)
-

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Forward Looking Statements

- o Some of the statements contained in these presentations that are not historical facts are statements of future expectations and other forward-looking statements (within the meaning of Section 27A of the Securities Act of 1933 or Section 21E of the Securities Exchange Act of 1934, each as amended) that are based on management's current views and assumptions, and are conditioned upon and also involve known and unknown risks and uncertainties that could cause actual results, performance or events to differ materially from those in such statements due to, among other factors:
 - o Significant changes in demand in the key application markets and from key customers served by our products make it extremely difficult to accurately forecast and plan our future business activities. In particular, following a period of significant order cancellations, we recently experienced a strong surge in customer demand, which has led to capacity constraints in certain applications;
 - o our ability to utilize and operate our manufacturing facilities at sufficient levels to cover fixed operating costs in periods of reduced customer demand, as well as our ability to ramp up production efficiently and rapidly to respond to increased customer demand, and the financial impact of obsolete or excess inventories if actual demand differs from our expectations;
 - o our ability to successfully integrate the acquisitions we pursue, in particular the successful integration and operation of the ST-Ericsson joint venture;
 - o ST-Ericsson is a new wireless joint venture, representing a significant investment and risk for our business. The joint venture is currently engaged in restructuring initiatives and further declines in the wireless market, as well as the inability of ST-Ericsson to complete its ongoing restructuring plans or to successfully compete, could result in additional significant impairment and restructuring charges;
 - o we currently hold a significant financial investment in Micron Technology Inc ("Micron") as a result of the previously announced sale to Micron of our equity investment in Numonyx in an all-stock transaction. Our shares in Micron are subject to certain resale restrictions and, consequently, there is no guaranty as to when we will be able to sell them and at what price;
 - o our ability to compete in our industry since a high percentage of our costs are fixed and are incurred in currencies other than U.S. dollars, especially in light of the volatility in the foreign exchange markets and, more particularly, in the U.S. dollar exchange rate as compared to the other major currencies we use for our operations;
 - o the outcome of ongoing litigation as well as any new litigation to which we may become a defendant;
 - o changes in our overall tax position as a result of changes in tax laws or the outcome of tax audits, and our ability to accurately estimate

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tax credits, benefits, deductions and provisions and to realize deferred tax assets;

- o the impact of intellectual property ("IP") claims by our competitors or other third parties, and our ability to obtain required licenses on reasonable terms and conditions;
 - o our ability to execute our restructuring initiatives in accordance with our plans if unforeseen events require adjustments or delays in implementation or require new plans;
 - o our ability in an intensively competitive environment to secure customer acceptance and to achieve our pricing expectations for high volume supplies of new high-products in whose development we have been, or are currently, investing;
 - o changes in the political, social or economic environment, including as a result of military conflict, social unrest and/or terrorist activities, economic turmoil, as well as natural events such as severe weather, health risks, epidemics, earthquakes, volcano eruptions or other acts of nature in, or affecting, the countries in which we, our key customers or our suppliers, operate.
- o Such forward-looking statements are subject to various risks and uncertainties, which may cause actual results and performance of our business to differ materially and adversely from the forward-looking statements. Certain forward-looking statements can be identified by the use of forward-looking terminology, such as "believes," "expects," "may," "are expected to," "should," "would be," "seeks" or "anticipates" or similar expressions or the negative thereof or other variations thereof or comparable terminology, or by discussions of strategy, plans or intentions. Some of these risk factors are set forth and are discussed in more detail in "Item 3. Key Information-- Risk Factors" included in our Annual Report on Form 20-F for the year ended December 31, 2009, as filed with the SEC on March 10, 2010. Should one or more of these risks or uncertainties materialize, or should underlying assumptions prove incorrect, actual results may vary materially from those described in this release as anticipated, believed or expected. We do not intend, and do not assume any obligation, to update any industry information or forward-looking statements set forth in this release to reflect subsequent events or circumstances.
-

Company Strategy & Vision
Carlo Bozotti
President and Chief Executive Officer

ST Business & Operations
Alain Dutheil
Chief Operating Officer

A Year-Ago...The Global Recession

- o Semiconductor bookings dropped rapidly in Q408; demand remained weak in first half of 2009
 - o Impact on industry's revenue evolution greater than initially expected
 - o Industry utilization rates reached unprecedented low levels; capacity cut to react to lack of demand
 - o Inventory levels were substantially reduced
 - o Economic impact varied by geography
 - o China - started to recover
 - o Europe, US and Japan - still difficult conditions
 - o Global market bottomed in mid-2009
-

Managed Well Through the Downturn...

- o ST exited the recession a stronger and leaner company
- o Increased operating leverage
- o Completed ~\$750M of cost savings initiatives in 2009
- o Improved financial strength and stability
- o Over \$2.76B in gross cash and marketable securities exiting March 2010
- o Continued progress in advanced technology R&D partnerships
- o Reshaped manufacturing
- o Committed to the ongoing integration of ST-Ericsson
- o Performance of ST's global team
- o Reacted quickly to align manufacturing, costs and working capital to end markets
- o Stayed focused on customers

2009 Semiconductor Industry Revenue

TAM: -9%

SAM: -13%

ST (ex FMG): -10.8%

Today's Priorities

- o Resuming progress towards long-term financial goals
- o Focused on reaching sustainable levels of sales and net income
- o Organic growth / new product innovation
- o Disciplined portfolio management
- o Leveraging global scale and scope
- o Commitment to shareholder value creation
- o ST-Ericsson
- o Competitive cost structure / completion of announced restructuring programs
- o New portfolio
- o Preparing the company for future, profitable growth

Current Expectations

2010 Semiconductor Industry Revenue

SAM: approximately +20%

Semiconductor Industry

Semiconductor Market Growth
Total Available Market
~16% per year ~8% per year
~13% ex FY2000
2008-09
-9%

- o Demand driven cycle less severe
 - o Recession led to 2 years of decline
 - o Semis well positioned to grow in future years
- Source: WSTS

Key Target Areas

Total Available Market

Application Product

Industrial 9%

Automotive 7%

Wired 6%

Wireless 21%

Data Processing 38%

Consumer 19%

Application

Specific ICs

39%

Standard ICs

6%

Discrete

6%

MCU

5%

Other

Memories

2%

Sensors &

Actuators

2%

Non SAM

40%

ST: well positioned, diversified, many opportunities

Source: iSuppli (including memories), WSTS

Market Mega-Trends

- o Multimedia convergence is accelerating
 - o Re-rating of industry growth
 - o Semiconductor market is moving East
 - o Cost of fabs and process R&D are soaring
 - o Foundries are getting a significant share of semi business
 - o R&D is shifting across the value chain
 - o Industry is consolidating by application
 - o Pervasion into new high-growth industries
-

Company Overview

STMicroelectronics
A Global Semiconductor Company

Q110 revenue: \$2,325M
By location of order shipment

13%
America
27%
EMEA
41%
Greater
China &
South Asia
19%
Japan &
Korea

- o FY09 revenues of \$8.51B
 - o 15 main manufacturing sites
 - o Advanced R&D centers in 10 countries
 - o Over 51,000 employees, including ST-Ericsson
 - o Listed on NYSE Euronext (New York & Paris) and Milan stock exchanges
-

The Evolution of ST

2010
Completed the sale of Numonyx to Micron
2009
ST and Ericsson created ST-Ericsson JV
2008
Deconsolidation of Flash, acquired NXP Wireless,
announced the JV with Ericsson Mobile Platforms
2005
New CEO
2000
Became #1 European semiconductor company
1999
Entered world's Top Ten semiconductor suppliers
1994
IPO
O
1987
Merger of SGS Microelettronica of Italy and
Thomson Semiconducteurs of France

STMicroelectronics Today

5th largest global semiconductor company - #1 in Europe *
Focus on multimedia applications, analog and power
management
World leading positions in wireless, auto, industrial,
consumer and computer peripherals end-markets
Key strategic alliances with global technology leaders
including: Bosch, Ericsson, HP, IBM, Nokia, Samsung
Strong balance sheet: cash & cash equivalents of \$2.76B **

*Source: iSuppli, 2009

**As at March 27, 2010, including non-current marketable securities and cash
restricted at JV.

Reshaping ST's Product Portfolio

Genesis
Microchip
NXP Wireless
Ericsson Mobile Platforms

5 years
R&D grants
secured
Manufacturing
restructuring

ST-NXP
synergy plan
Headcount
realignment
ST-Ericsson cost
realignment
Micron acquired
Numonyx

Q108 Q208 Q308 Q408 Q109 Q209 Q309 Q409 Q110
50%
numonyx STEricsson Micron numonyx

Business Segment Overview

50/50 JV with Ericsson

Automotive, Consumer,
Computer &
Communication
Infrastructure ("ACCI")

Industrial and
Multisegment Sector
("IMS")

Major Product
Lines
Products
Major Customers

Home
Entertainment
& Displays

Computer &
Communication
Infrastructure

Automotive
Products
Group

Analog,
Power and
MEMS

Microcontrollers,
Memories and
Smartcards

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Diversified Customer Base
2009 Top 30 OEM and Top EMS Customers

Communications

- o Huawei
- o Nokia
- o Research in Motion
- o SonyEricsson
- o Samsung

Consumer

- o ADB
- o Cisco/Scientific Atlanta
- o Garmin
- o LG Electronics
- o Nintendo
- o Pace
- o Panasonic
- o Philips
- o Sagem
- o Sharp
- o Technicolor

Automotive

- o Bosch
- o Conti
- o Delphi
- o Denso
- o Marelli

Computer

- o Apple
- o Dell
- o Eastman Kodak
- o HP
- o Seagate
- o Western Digital

Industrial

- o Delta
- o Gemalto
- o Siemens

EMS

- o Cal-Comp.
- o Elcoteq
- o Flextronics
- o HonHai Foxconn
- o Jabil
- o Sanmina - SCI

Note: Alphabetically listed by main application sector

Top Players in 2009 by Application

Digital Consumer

Automotive

Industrial

Wireless Communications

Source: iSuppli, ST

Manufacturing

Lighter Asset Model
Manufacturing Flexibility Through The Market Cycle

MARKET
DEMAND

AVERAGE
MARKET
GROWTH

SUPPLIED THROUGH
EXTERNAL FLEXIBILITY

SUPPLIED THROUGH
INTERNAL CAPACITY

ST INTERNAL
CAPACITY

TIME

Target Model: 80% internal, 20% outsourced

ST Manufacturing Evolution

ST STRATEGY PATH:
IDM Flexible IDM Lighter Asset

NUMBER OF FRONT END FABs:
17 14 9 8

WAFER PROBING (EWS):
From Europe to a major WW center in Singapore

ASSEMBLY - NUMBER OF PLANTS:
In Mediterranean : 3 2
In Asia: 3 (1 China) 4 (2 China) Expand Asia

2005 end 2009

Manufacturing Locations

Morocco

Phoenix

(final stages of closure)

(Agrate, Catania 6" & 8")

Philippines

China

(Shenzhen, Longgang)

Malta

Malaysia

Front-end fabs

Back-end fabs

Key Initiatives to Increase Capacity - 2010

Crolles2

300mm

Ramp to 3,200 w/week

32nm R&D capability

Agrate Singapore

150mm

Ramp to 18,000

w/day

Longgang

Shenzhen

g

200mm

Increase capacity in

BCD technologies and

MEMS

Q409 vs. Q410

Increase in total

capacity including

foundry = ~20%

Foundry

Electrical Wafer

Sort

Increase capacity in

wafer probing

Calamba

Increase capacity in

back-end fabs

Conclusion

2010 Corporate Priorities

Gain market

share

Cost

reduction /

capacity

expansion

Maximize

R&D

innovation

Value from

new products

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Maximize Shareholder Value

Financial Performance & Roadmap
Carlo Ferro
Chief Financial Officer

Agenda

- o Our Financial Results
 - o Our Opportunities
 - o Our Target Financial Model
-

Our Results

4 Years of Progress Masked by Currency

- o Divested flash memories
- o 3-step merger and 50% JV in Wireless
- o Technology alliance

US\$M

- o Reduced CapEx / Sales
- o Savings from restructuring initiatives: ~\$1.1B
- o Front-end fabs reduced from 17 to 9
- o Product R&D focus:
- o Advanced Analog
- o New ASSP and ASICs
- o MEMS
- o Smart power solution
- o 32-bit MCUs

(euro)/\$ 1.20 (euro)/\$ 1.43

50% of Operating Loss of ST-Ericsson not attributable to ST

Operating Income excluding restructuring and impairment charges, as reported

Recovered From the Recession in 2009

US\$M

Revenues

US\$M

Net Earnings

NOCF

Guidance Range:

+6% to + 12%**

-]400

-]200

0

200

0

500

1,000

1,500

2,000

Q308 Q408 Q109 Q209 Q309 Q409 Q110 Q210

(est.)

Adjusted Earnings Net Operating Cash Flow (ex M&A) Revenue

5

*Adjusted Earnings and NOCF (ex M&A) are non-GAAP measures that, the Company believes, provide us information. See appendix for definition.

**Q210 revenues guidance estimate: sequential growth of between 6% and 12%.

Our Results

In US\$M, except EPS Q308 Q409 Q110 FY09 FY08

Net Revenues 2,696 2,583 2,325 8,510 9,842

Gross Margin 35.6% 37.0% 37.7% 30.9% 36.2%

Adjusted Operating Profit before

Restructuring attributable to Parent*(1)

Adjusted Operating Margin*(1)

210

7.8%

128

5.7%

81

4.0%

(499)

-6.8%

468

4.8%

EPS Diluted

Adjusted EPS Diluted*

(0.32)

0.15

(0.08)

0.04

0.06

0.07

(1.29)

(0.72)

(0.88)

0.40

RONA attributable to Parent*(1) 10.5% 7.6% 5.1% -28.3% 5.9%

Net Operating Cash Flow

(before M&A)*

140 221 176 226 647

Effective Exchange Rate (euro)/\$ 1.54 1.43 1.39 1.37 1.49

6

*Some of the measures above are non-GAAP measures that, the Company believes, provide useful information. See appendix and below for definition and calculation methodology.

(1) Description of adjusted metrics attributable to parents:

o Adjusted Operating Profit attributable to parent = Reported Operating Profit/Loss before restructuring - 1/2 of ST-Ericsson JVS Operating Profit/Loss before restructuring

o Adjusted Operating Margin attributable to parent = Operating Profit attributable to parent / (Reported Revenues - 1/2 of ST-Ericsson JVS Revenues)

o RONA attributable to parent = Annualized Operating profit attributable to parent / (Reported Net Assets - 1/2 of ST-Ericsson JVS Net Assets)

Net Operating Cash Flow

US\$M

Net Operating Cash Flow (ex M&A)*

-4%

-2%

0%

2%

4%

6%

8%

0

200

Q108 Q208 Q308 Q408 Q109 Q209 Q309 Q409 Q110

-10%

-8%

-6%

-200

NOCF* NOCF/Sales (%)

*Net Operating Cash Flow (ex M&A) is a non-GAAP measure that, the Company believes, provides useful information. See appendix for definition.

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Micron acquired Numonyx Holdings B.V. in consideration for 140M shares of Micron common stock, including assumed management's stock plan

- o Deal closed on May 7, 2010
- o In connection with the sale of its 48.6% stake in Numonyx, ST has received:
- o 66.88M shares of Micron common stock
- o They will be dealt as a financial investment

Numonyx Deal*

Transaction

Consideration

for ST y

- o At May 6, 2010 Micron's share price of \$ 8.75, the value of the shares is \$585.2M
- o A substantial portion of such shares is hedged
- o In connection a payable of \$77.8M is due by ST to Francisco Partners
- o future full ownership of the Numonyx M6 facility in Catania, Italy,
- o ST has committed to contribute it to the new photovoltaic joint initiative owned 33% by ST; valued 60M (euro)
- o Total consideration, net of the payable, of \$580M
- o Eliminated the risk of \$225M related to the ST's guarantee to a Numonyx loan, which has been repaid in full at closing

Financial

i tt ST

- o Opportunity to accelerate the recovery of \$250M of restricted cash, due to the earlier redemption of the Hynix-Numonyx deposit

* Based on Micron's trading price of \$8.75 per share on May 6, 2010.

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impact to o \$800M to over \$1B improvement of ST's capital structure

- o ST's estimated gain after tax to be recorded in Q210 P&L: ~\$245M

A Solid Financial Foundation

(US\$ million) Dec. 31, 2008 Dec. 31, 2009 Mar. 27, 2010

Available Cash 1,640 2,394 2,342

Restricted Cash 250 476 368

Marketable Securities, Non-current 242 42 47

TOTAL 2,132 2,912 2,757

Total Financial Debt (2,677) (2,492) (2,191)

Net Financial Position (545) 420 566

DIVESTITURES

o \$1.1B net proceeds from

M&A in 2009

S l f N i M

2016 CONVERT BOND

o Dec 2009 / Jan 2010:

repurchased \$316M

ARS LITIGATION

o February 2009: won FINRA

award ordering Credit Suisse to

o Sale of Numonyx in May pay to ST \$406M plus interest

2010: will increase liquidity

by an estimate of over

\$500M after lock-up period

o Sale of Phoenix signed in

May 2010

o In Q210 repurchased

additional \$55M

o 15.3M shares to be

cancelled

o Redemption of residual

\$673M likely due in

February 2011

o December 2009 collected \$75M

o March 2010: won in US District

Court: confirms award and

denies CS motion to vacate

o CS may still appeal but based

on the award and the Federal

Court, ST can expect to collect a

further \$354M including interest

Dividend Evolution

Company % Yield**

MCHP 4.85%

TSM 4.58%

Dividend Yield as of

May 31, 2010:

MXIM 4.45%

STM 3.62%

LLTC 3.16%

INTC 2.74%

XLNX 2.49%

NSM 2.24%

AMAT 1.91%

KLAC 1.92%

TXN 1.89%

Our Opportunities

Assets Lighter Strategy

CapEx to Sales Ratio Depreciation by Wafer

2009 Base = 100*

5.3%

*Based on assumed (euro)/\$ rate of about 1.30.

12

Manufacturing focused to reduce wafer costs, after return to full loading

- o Currency, cash cost efficiency and roll-over depreciation are expected to contribute to about 10% wafer cost reduction from Q110 thru Q410*
- o Further cost reduction after the final phase-out of Phoenix fab, from Q210
- o Assembly cost reductions driven by volume, shift to Asia and Gold-Copper conversion

Continuous Focus on Cost Reduction

Wafer Cost Index (Base 100 Q110*)

*Based on assumed (euro)/\$ rate of about 1.30.

Completing the On-Going Restructuring
Closure of
Phoenix
fab by
Q111
~550
headcount
reduction
by mid-
2010
~\$280M in
cost
savings at
completion
vs. Q110
~600
headcount
reduction
by end
2010
14

Currency Exposure

Q110

Total Costs (COGS+OpEx) By

Currency (Q110)

Quarterly Currency Effect: +1% change

o (plus-minus)\$4 to \$5 million impact to gross profit

o (plus-minus)\$4 to \$5 million impact on operating expenses

o (plus-minus)\$8 to \$10 million on operating profit

(euro) (*)

46%

\$

44%

50%

60%

70%

80%

90%

100%

Hedging: % of Euro exposure currently hedged**

Unhedged

15

*Euro ((euro)) includes currencies such GBP, CHF, MAD Morocco.

**As of May 31, 2010.

Other 5% SEK 5%

% Hedging of

total (euro) costs

0%

10%

20%

30%

40%

Q3 10 Q4 10 Q1 11 Q2 11

Hedged before May 3, 2010

ACCI: Performance & Targets*

ACCI

\$

Mid-term

Teens

Q410*

US\$M

High Single

Digit

Q110

5.3%

*Q410 assumes revenues based on a substantial continuity in market demand trends and an effective exchange rate between 1.25 (euro)/\$ to 1.30 (euro)/\$.

**Segment operating results exclude, among others, unsaturation charges.

Operating Margin**

Revenue

16

IMS: Performance & Targets*

\$ Q410

High Teens

Q110

11.3%

Operating Margin**

Revenue

17

*Q410 assumes revenues based on a substantial continuity in market demand trends and an effective exchange rate between 1.25 (euro)/\$ to 1.30 (euro)/\$.

**Segment operating results exclude, among others, unsaturation charges.

Wireless: Performance & Targets*

Q410

Mitigate losses

Q110

-19.9%

US\$M

50%

losses are

minority

interest

Operating Margin***

Revenue

ST-Ericsson plans profitability at

quarterly revenue run rate of (greater or equal) \$750

million, after restructuring is complete

18

*Q410 assumes revenues based on substantial continuity in market demand trends and an effective exchange rate between 1.25 (euro)/\$ to 1.30 (euro)/\$.

** See appendix - Q308 included 2 months of former NXP business and was before formation of ST-Ericsson.

***Segment operating results exclude, among others, unsaturation charges.

Effective Tax Rate

- o Sustainable ETR: 16% (plus-minus) 3/4 3 points
- o Once ST moves to a higher overall profit before tax and a more

ST Operations:

~16% ETR

ST-Ericsson:

Similar structure

as ST

uniform distribution of earnings

among ST operations and

ST-Ericsson

- o Tax structure is still a competitive advantage

- o Short term ETR

Mid-Term ETR

16% (plus-minus) 3/4 3pts

Short-ST Operations:

ST-Ericsson:

- o Currently estimate a significantly higher ETR and will improve as ST-Ericsson recovers from losses

19

~16% ETR Benefit on losses

at much lower rate

2010 increase

in ETR

Our Target Model

Financial Model*

Transitional Model:

~ All segments at / above break-even

Low / mid-single-digit operating margin

Back to net operating cash flow of 6% to 10% of sales

Q409 - Q110 Achievements

Operating margin: 3.5% in Q4 down to 0.5% in Q110 on
seasonally lower revenues

Excluding Wireless: operating margin 7.4% in both periods

Net operating cash flow: 8.6% and 7.6% of sales respectively in
the two periods

ST Financial Model

9% to 12% operating margin x 1.3-1.4 net assets turns

12% to 18% return on net assets (RONA) target

Double digit net operating cash flow as % of sales

21

*See appendix

12

....Achievable in Short Term

0.5%

9%

12%-18% RONA

or

16%-22% RONA

attributable to ST

OpEx Leverage

New Products

Manufacturing

Restructuring

Currency

Price

Q110 Prices New Products Manufacturing Currency Restructuring OpEx Leverage Q410

Operating

Margin*

Q110

Target

Operating

Margin*

22

* Operating margin before restructuring charges: not a GAAP measure, please see appendix.

....by Improvements in All Segments*

0.5%

9%

IMS: from 11% to High Teens*

ACCI: from 5% to High Single Digit*

Wireless: substantial reduction of losses*

12%-18% RONA

or

16%-22% RONA

attributable to ST

Q110 Prices New Products Manufacturing Currency Restructuring OpEx Leverage Q410

Operating

Margin**

Q110

Target

Operating

Margin**

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*Product segment targets assume substantial continuity in market demand trends and an effective exchange rate between 1.25 (euro)/\$ to 1.30 (euro)/\$.

**Operating margin before restructuring charges: not a GAAP measure, please see appendix.

Shareholders Value Proposition

World-wide

semiconductor

leader

Semiconductor

industry recovery

Strong capital

ST value driven

Moving towards

solid profitability

model

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strategic

transformations

Innovative products

and expanded

customer base

structure

Appendix

- o Net operating cash flow is defined as net cash from operating activities minus net cash used in investing activities, excluding payment for purchases of and proceeds from the sale of marketable securities (both current and non-current), short-term deposits and restricted cash. We believe net operating cash flow provides useful information for investors and management because it measures our capacity to generate cash from our operating and investing activities to sustain our operating activities. Net operating cash flow is a U.S. GAAP measure and does not represent total cash flow since it does not include the cash flows generated by or used in financing activities. In addition, our definition of net operating cash flow may differ from definitions used by other companies.
- o Net financial position: resources (debt), represents the balance between our total financial resources and our total financial debt. Our total financial resources include cash and cash equivalents current and non current marketable securities short-term deposits and restricted cash, and our total financial debt include bank overdrafts, the current portion of long-term debt and long-term debt, as represented in our consolidated balance sheet. We believe our net financial position provides useful information for investors because it gives evidence of our global position either in terms of net indebtedness or net cash by measuring our capital resources based on cash, cash equivalents and marketable securities and the total level of our financial indebtedness. Net financial position is not a U.S. GAAP measure.
- o Adjusted Net Earnings is a non-GAAP measure and is used by the Company's management to help enhance an understanding of ongoing operations and to communicate the impact of the excluded items. Non-GAAP earnings excludes impairment restructuring charges and other related closure costs attributable to Parent Company's shareholders, the impact of purchase accounting (such as in-process R&D costs and inventory setup charges), other-than-temporary impairment charges on financial assets and impairment related to equity investments, net of the relevant tax impact.
- o Financial Model: Presented at May 2009 Analyst Day
- o Key Information on Consolidation / Deconsolidation:
 - o ST completed the deconsolidation of its Flash Memory Group (FMG) segment and took an equity interest in Numonyx on March 30, 2008, which is reported under the equity method of valuation with a one quarter lag in reporting.
 - o ST-NXP Wireless, a joint venture initially owned 80% by ST, began operations on August 2, 2008 and was fully consolidated into ST's operating results. On February 1, 2009 and prior to the closing of the merger of ST-NXP Wireless Ericsson Mobile Platforms to create ST-Ericsson, ST exercised its option to buy out NXP's 20% ownership stake of ST-NXP Wireless.
 - o ST-Ericsson, a joint venture owned 50% by ST, began operations on February 3, 2009 and is consolidated into ST's operating results as of that date. ST-Ericsson is led by a development and marketing company and is consolidated by ST. A separate platform design company providing platform designs mostly to the development and marketing company is accounted for by ST using the equity method.
 - o Wireless Segment: As of February 3, 2009, "Wireless" includes the portion of sales and operating results of the 50/50 ST-Ericsson joint venture as consolidated in the Company's revenues and operating results, as well as other items affecting operating results related to the wireless business.
 - o Sales recorded by ST-Ericsson and consolidated by ST are included in Telecom and Distribution

Pre-Tax Items to Adjusted Earnings*

RESULT

NXP Wireless Inventory Step-up

Genesis in Process R&D

NXP Wireless in Process R&D

Impairment & Restructuring Charges

(attributable to Parent Company's
shareholders)**

57

76

22 65 20 240

88

21

76

481

Other-than-Temporary Impairment

Numonyx Impairment

14

300

68 139

203

138

480

OPERATING

NET EARNINGS

Estimated Income Tax effect of Adj. (46) (27) (15) (79) (141)

Adjusted Net Earnings* 134 36 62 (627) 356

*See appendix.

**Total impairment & restructuring charges were \$96M in Q409 and \$33M in Q110.

Sustainable Technology &
Leadership
Jean-Marc Chery
Chief Technology Officer

Introduction

Technology is bringing a competitive advantage to ST in the field of multimedia convergence and power applications

- o R&D leadership & technology segmentation

- o R&D value chain breakdown & management

- o Technology programs status & roadmap

- o Summary

2

Technology R&D Leadership Brings:

- o Fast Time to Market
- o First device tape out
- o Device volume and yield ramp up
- o Innovation
- o Performance, power, area scaling
- o Cost of ownership, design simplicity
- o Supply Chain Multi Sourcing
- o Time to market first source
- o Second / alternative source

3

CMOS Logic/Analog Characteristics

Industry first

Serializer/Deserializer

for networking in bulk

silicon (CMOS32 LPH)

High

Performance

Power

leakage

Design

simplicity

General

Purpose

Low-Power

Cost of Area scaling

ownership

4

Analog /

Derivatives

Value Chain Breakdown

Fundamental

Research

Advanced

Semiconductor

R&D

Technology

Development Manufacturing

o Screen new

materials &

o Innovation in

integrated device

o Process qualification

o Technology to design

o Fast yield learning

curve

processes

& process

technology

o Design platform

qualification

o Device performance

master plan

o Multi source

enablement

Balancing technology operations with
internal/third party competence centers:

o Advanced CMOS process through

International Semiconductor Development

Alli (ISDA) ith t t

Accelerates technology innovation and

leverages multi third party competence

centers

o Foundation / advanced R&D through joint

d i / hi tit t ti Alliance with strong concurrent

development activities

o Analog and Derivatives process through

internal cluster of Agrate and Crolles

o Distributed design enablement through

Agrate / Crolles / Greater Noida

academia research institutes cooperation

o CEA LETI: a cornerstone

o Advanced CMOS, both low power and

general purpose, R&D through ISDA

o Advanced R&D pre T0

5

Value Chain Management: Innovation

- o Process flow

- o Device architecture

...creates the difference on device ideal balanced performance vs. applications

- o Leverages best-in-class innovation vs.

T t d d t

Distributed, Cooperative R&D

6

- o Targeted products

- o Critical decision factors

- o Technologies

- o Mitigates risk of choice

- o Shares expenses

Value Chain Management: Operations

Concurrent ISDA engineering enables best-in-class and lean development techniques for:

- o Better silicon proven solution and lower cost
- o Manufacturing synchronization for wafer fab

Focused ST cluster on advanced CMOS concentrating activities of industrialization, derivatives/analog development, design platform enables:

- o Fast volume yield learning internal ramp up
- o Multi sourcing enablement
- o Fast learning cycle for time to market
- o Lean capex and opex
- o Technology differentiation
- o Best-in-class technology to design, enablement
- o Efficient design platform

7

Technology Leadership...

o Strengthening core competencies: device architecture, process integration, design enablement

Crolles:

- o Low-power device
 - o RF add-on devices
 - o Embedded Dram and high performance device
 - o CMOS imaging sensor
 - o Photo lithography, TSV and 3D
 - o Agrate:
 - o Smart-Power and analog
 - o Embedded Nvm
 - o Greater Noida:
 - o Design enablement
-

....Enables...

- o Competitive innovation driven by ST's proactive approach and credibility
 - o Global and networked R&D competence centers optimized and managed by ST
 - o ST's commitment to a sustainable innovation expenses-to-sales ratio
- 9
-

Status of Key Programs

Prototyping, production ramp up Q410

CMOS 40LP Prototyping, production ramp up Q211

CMOS 32LP Prototyping, production ramp up Q311

CMOS 32LP Crolles 300 installing capacity

CMOS 28LP Designing, prototyping Q211

10

Yield Learning - D0 Trend

Tremendous improvement of time to yield generation after generation

D0 Poisson (def/cm(2))

U8500 Platform

Designed on ST leading-edge, LP 45nm -
a key enabler to achieve the performance
Technology / Product Intimacy
Immediately ported to the LP 32nm
ensuring economical sustainability
and further performance improvement
Cortex A9 @ 1.5 GHz
12

HKMG gate first ideal for balanced performance,
power, area scaling, cost and design simplicity

Performance Power Area Cost CMOS32/28 LP

0

50

100

Cost Dynamic Power

Static Power

Sram Power

Area

ISDA

Competitor 1

Competitor 2

13

CMOS 65RF Prototyping, production ramp up Q310
Other Key Programs
CMOS F9 Production ramp up started Q309
CMOS F10 Prototyping, production ramp up Q310
BCD8 A Production ramp up started Q309
BCD8 AS Prototyping, production ramp up Q310
14

BCD8 A

Key description

- o Technology: BCD8A-40V 4 metal
 - Cu - 30 Mask
 - o Die size: 51mm²
 - o Challenges:
 - o 1st automotive BCD8 product
 - o New HIQUAD110 package
 - o Bonding: CU wire 1mil POA 2mils
- 15
POA, passive, UBM (NiPd)
-

VLSI Platform R&D Model

120

130

enses

Exit of Crolles2 alliance

partners end 2007

80

90

100

110

00 = 2007 Technology R&D Expe

Current model, through

participation in alliances

resulting in R&D

productivity increase

60

70

2007 2010 Index 10

ST internal technology R&D cost (before grants)

Former partners participation to Crolles2 Alliance costs

16

CMOS Technology Roadmap
2009 2010 2011 2012
Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4
Ready for production
Ready for prototyping
CMOS 32LP
CMOS 28LP
CMOS 28LP
CMOS 20LP
CMOS 20LP
Low
Power
ST
CMOS 28G
CMOS 20G
General
Purpose
ISDA

CMOS45...28 LP/G Manufacturing Source
Technology / Source First TTM Second Alternative
CMOS 45LP No
CMOS 40LP
CMOS 40G No No
CMOS 32LP No
CMOS 28LP
CMOS 28G No
Crolles 300
One of multi-foundries source
Another one of multi-foundries source
18

Derivatives/Analog Technology
2009 2010 2011 2012
Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4
CMOS 65RF+Passive+Energy Mgt
nal
Ready for production
Ready for prototyping
CMOS 55RF
CMOS 40RF
CMOS 28RF
BCD6 S Offline - 50/100/190V
BCD8SH - 60/100V
BCD8SP- 8/18/40V
BCD9
ST
Analog
Mixed Sig
Analog
BCD
CMOS F10 -90 nm
CMOS M10+-80nm
CMOS M55
Embedded
Flash
19

Derivatives/Analog Manufacturing Source
Technology / Source First TTM Second
HCMOS9A Crolles 200 Foundry *
CMOS65/ 55RF Crolles 300 Foundry *
CMOS55
eFlash
Crolles 300 Foundry *
CMOSF10 Rousset 8 Foundry *
BCD8 Agrate 8 Catania M5
* One out of multi-foundries sources
20

The Future is Bright...
Devices architecture (FDSOI, FinFET 3D)
Gate FDSOI=2D FinFET=3D
Photolithography (multiple patterning, extreme UV)
21

3D/Heterogeneous integration: a competitive advantage on the solution cost at same device performance, power leakage and area scaling
Solution cost is driven by process and design complexity
...as Innovation Drives Breakthroughs...

-

- o Communication bandwidth rapidly increasing from few Gb/s to 100Gb/s
- o Copper wire technology not able
- o Optical connections already present in servers/routers rack to rack
- Photonics on Silicon
- 22
- to sustain such data rates
- o Photonics on silicon technology allows die to die and within die optical communication
- CMOS
- wafer
- transistors metal interconnects
- F
- C
- Modulator

....and Aligns ST with Key Trends

Derivatives / Mixed Signal Analog trends:

- o Integration on single chip of digital analog and RF add on devices
- o Flash cell architecture, driving area scaling

Power / Analog trends:

- o Some increase in Logic content but decrease of die area with 160nm/130nm technology nodes
 - o New modules architecture and materials for better power / analog features
-

ST's Technology & Leadership: Summary

- o Enables differentiated / competitive product positioning through:
- o Device integration and device add-on for derivatives / analog
- o Design enablement
- o Specific process modules for best device performance
- o Fast yield learning cycle time techniques
- o Cooperative model allowing leveraged capture of technology innovation and risk mitigation:
- o Leverages: Full multi sourcing supply chain efficiency
- o ST's results and commitment:
- o Demonstrating competitive advantage at 40nm; strengthening it again at 28nm, then offering most advanced platforms for derivatives/analog as well
- o Moving to 20nm and beyond, with increasing complexity and facing the industry's most challenging major architecture, process, and equipment disruptions
- o Continuing to invest in deep knowledge of process, design enablement, manufacturing and their interactions

Undisputed Leader in Multimedia Convergence and Power Applications

24

Multimedia Convergence &
ACCI Sector Overview
Philippe Lambinet
General Manager, Home Entertainment & Displays Group

ACCI Focus Applications
Automotive
Computer &
Communication
Infrastructure
Home
Entertainment
& Displays
Leveraging Technology R&D / Multimedia Convergence

ACCI Revenues

ST Q110 Sales: \$2,325M

ACCI Q110 Sales: \$909M

39%

35%

25%

1%

34%

29%

37%

ACCI IMS Wireless* Others

* See appendix

** Includes Imaging business

Automotive (APG)

Computer and Communication Infrastructure (CCI)

Home Entertainment & Displays (HED)**

3

ST Driving Multimedia Convergence

State-of-the-Art

CPU

Audio/Video

Encode/Decode

3D GFx

Networking

Car TV

Multimedia Key Enablers

oLeading positions in all
convergence markets

oLow-power process

roadmap

oBroad system know-how

Key Drivers

oServices

oUser interface

oLow-power

Smartphone

Netbooks

4

Automotive

Automotive Market Growth Factors
More Cars, More Electronics
CAGR 2009-2016:
Cars: 6.2%
Electronics: 8.5%
250 Silicon: 10.2%
270
283
298
311 319 325 333
20000
25000
30000
35000
arket (M\$)
ASIC-ASSP
MCU
Power
Sensors
Electronic ignition
Electronic gearbox
Air conditioning
Antilock brakes
Navigation
Adaptive cruise ctrl
Airbags
Stability control
Night vision
Telematics
Bluetooth
Start/stop
Pedestrian detection
Lane change
Driver assist maps
Car 2 car
Internet
Brake-by-wire
Steer-by-0
5000
10000
15000
2009 2010 2011 2012 2013 2014 2015 2016
Silicon Ma
Standard
Others
Silicon/Car (\$)
1975 1985 1995 2005 2015
Central locking
Car radio
Seat heating
Automatic mirror
Xenon light
Hybrids
LED lighting
Steer by wire
Electric vehicles
25M cars 32M cars 36M cars 64M cars 86M cars

ST: #3 in Global Automotive IC's
ASIC-ASSP, MCU, MPU, VIPower, RF, Vision Sensors, DSP
Products
Power Train
Engine Transmission
Door Modules,
Anti-theft
Lighting,
Wipers
Body
Electronics
HVAC,
Cluster
Chassis-Safety
Braking
Steering
Airbag
Infotainment
Car
Infotainment
PND
Telematics
GPS
Customers Applications Segments

Trends and Accomplishments in Automotive

Trend:

Innovation driven by social responsibility

- o Emissions, safety, connectivity

Trend: Large emerging markets with

different needs and

requirements

ST Strategy:

Innovate with the leaders ST Strategy:

Fast time to market at

different feature and

cost points

Accomplishments:

- o 32-bit MCU awarded by North

American OEM for a new

global transmission platform

- o Chosen as a supplier of a next

generation powertrain MCU platform

with 55nm embedded flash for a major Tier 1

- o Chosen to provide a full IC portfolio for Asia

airbag platform of major European Tier 1

Accomplishments:

8

- o 1st worldwide Li-Ion battery manager IC in a mass production plug-in hybrid vehicle

- o Selected to develop a new radar baseband IC for adaptive cruise control for a US Tier 1

- o MCU award by the fastest growing Chinese carmaker for all powertrain

- o Steady #1 in China, doubling revenue in auto electronics every year from 2006 to 2011

- o Gained 100% share of car radio tuner for two major Japanese Tier 1s for China

Computer & Communication
Infrastructure

Leader in Digital and Analog ASIC
CARTRIDGE HDD PRINTER NETWORK
Motor
Controller
Digital
ASIC
BS RF &
Active
Print
Heads
& Head
Drivers
BCD
& SOC
HCMOS
Cables
Drivers
MFLD BICMOS
TOP 1 TOP 2 TOP 3 TOP 3
10

Market Trends and Strategy in ASIC

- o Cloud computing will fuel the next wave, generating increasing demand for (green) infrastructure and transforming all applications in cloud conscious clients
- o ASIC continues to be an effective win-win model for CCI customers and ST continues to be committed to it

Cloud Computing Web Connected Internet Traffic Green Systems

- o The strategy: expanded product offering and flexible business model
 - o Key achievements
 - o Significant design wins in the areas of communication infrastructure and printers in digital
 - o Launch of the first 32nm bulk platform for networking applications
 - o Expansion of the SPEAr family with the launch of the 1300 series
-

CCI Growth Drivers
BiCmos ASIC
for AOC and RF
PrintHeads for
InkJet Printers
Digital ASIC for
Networking
Printer SOC and
SPEAr eMPU
12

Home Entertainment & Displays

Consumer Electronic Trends

- o Analog switch-off
- o Increasing demand for Pay TV and FTA satellite
- o New connected services 150

200

250

Mu STB Market Evolution

- o Content aggregation - broadcast & IP
- o Services across all consumer devices
- o Exciting entertainment experience
- o 3D stereoscopic TV
- o GUI technologies - 3D graphics, MEMS...
- o LED BLU

o 0

50

100

250

300

DTV Market Evolution

Mu

Environmental factors

- o Power consumption
- o Green production

0

50

100

150

200

Source: iSuppli, IMS

1

Our Application-Platform Evolution

Gen. 1 Gen. 2 Gen. 3 Gen. 4

Fully open
connected

New services

New UI

Best

performance

HD H.264

market

platform

internet TV

enabler / cost ratio Client / Server

STi7100

STi7103/FLI106xx

STi7105

STi7104/FLI326xxH

STi7108

FLI7510

7109, 5202 7111, 7141, 7200

5211, 5206, ...

71xx, 52xx

STi7xxx

FLi7xxx

MPEG2 1000 DMIPS CPU Dual CPU & L2 cache Multi-core SMP CPU

Mass production Mass production In design

Production: 2007 a(3) Production: 2009 a(3) Production: 2010 a(3) Production: 2011 a(3)

Samples now

>5000DMIPS

Introduction of:

Dual 1080p60 decode

HD encode

Display Port, MOCA 2

>2000 DMIPS

Introduction of :

1080p60 decode

3D GL-ES2.0

MOCA 1.x

Introduction of :

AVS HD

DDR2

e-SA

HED H1 2010 Highlights

- o Gen. 2 based STB massively deploying
- o Mass production started in June 2009
- o 55nm process with >10 products families
- o > 50 customers in production now
- o > 50% of ST total STB shipments from 2010
- o Gen. 3 getting ready for ramp up in 2010
- o Gen. 3 introduced at CES 2010
- o Freeman/FLI7510 solution for DTV designed in at multiple partners
- o >20 partners enabled with STi7108 platform
- o Develop new category of STB & mediacenter
- o Develop new software for new services
- o RIA, GUI, gaming, mediaserver, ...

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Conclusion

Multimedia
convergence
o Power
management
o (less than or equal)45nm CMOS
o BCD, BiCMOS
o Microfluidics
o Analog/RF
P fl Broad/Deep
ACCI Key Strengths
Powerful
Technologies
Product
Portfolio
Consolidate
Leading
Positions
o ASICs
o Platforms
o Innovative
products
o Excellent service
/ support
Flexible
Business
Models
Serving
Market
Leaders
18

ACCI Strategy

DTV

Networking

32-bit MCUs

for Auto

- o Expand market share
- o Leverage key strengths
- o Capture larger share of new markets / new product generations
- o Diversify / grow customer base

Selected

capacity

expansion

Multimedia

convergence

SPEAr

platform

Automotive

industry

recovery

- o Participate in market recovery
- o ACCI still significantly below pre-crisis level
- o Favorable market trends in targeted segments
- o Solid financial position is a competitive advantage
- o Increased focus of R&D effort
- o Shared platform
- o Innovative ASICs business models
- o Collaborate with key customers, partners and research institutions

o Optimize manufacturing

Increase man fact ring efficiencies

Key drivers to grow sales

and profitability

19

- o manufacturing o Align capacity with demand
- o Accelerate development / move to new processes
- o Improve profitability towards high single digit operating margin by the end of 2010 and in the teens in the mid-term

IMS Overview &
Advanced Analog & Smart Power
Carmelo Papa
General Manager, Industrial & Multisegment Sector

IMS at a Glance

2009 IMS key facts

TAM = \$42B

Billing = \$2.66B

Market Share = 6.3%

Innovation Results:

- o 5 new products per day

- o ~20% of sales with products less than 2 years old

Schaumburg

Boston Prague

Catania

Taipei

Tokyo

Seoul

Shanghai

Noida

World Wide Competence Centers

- o 2 new system solutions (boards) per week

Technical Resources:

(designers, application engineers, technical marketing)

ANALOG & MEMS

45%

DIGITAL

35%

2

p

Singapore

Technical support located near customers

in all sales regions

POWER DISCRETE

20%

IMS Results & TAM Evolution

OEM

EMS

By Customer Type

2015

(US\$B)

CAGR

(2010 ~2015)

Digital 19 5.8%

Al & MEMS 32 6.4%

Distribution

Industrial

Consumer

Computer

Automotive

Telecom

By Market Segment

Analog 6.4%

Power Discrete 20 5.7%

Total IMS 71 6.0%

Power

2015 TAM Split

Greater

China &

South

Asia

EMEA

Japan &

Korea

America

By Region

Digital

Analog &

MEMS

Discrete

Source: WSTS, STMicroelectronics

IMS Billing Split & Evolution

36%

38%

40%

42%

44% IMS Sales weight

2009 Sales Split

22%

24%

26%

28%

30%

32%

34%

Q1'06 Q2 Q3 Q4 Q1'07 Q2 Q3 Q4 Q1'08 Q2 Q3 Q4 Q1'09 Q2 Q3 Q4

Power Analog & MEMS Digital

4

IMS: Analog

*R k i f t t t l S T A 1 I C 1

Analog Ranking 2009

Analog ICs* # 2

Key product family Key target applications

Power management ICs Power supply, solar, lighting

Mixed signal ICs Mobiles, peripherals, portable medical

Ranking refers to total ST Analog ICs sales

- o Ability to integrate analog and power in a single chip or in a single package in power conversion and power management applications

Competitive Advantages:

Battery management ICs Mobiles, PDAs, e-Books

LED driver ICs Street lighting, building, panel arrays

- o System know-how enabling the design of dedicated ICs for complex applications and a variety of reference designs for medium and small customers

- o Ability to deliver system solutions including sensors, analog ICs, microcontrollers and power discrete

- o The world's largest and most cost effective 6" front-end fab in Singapore

5

Source: iSuppli, ST

IMS: MEMS

Key product family Key target applications

2 or 3-axis

Accelerometers

PDAs, mobiles, toys, notebooks,

multimedia devices

MEMS* Ranking 2009

All Segments # 1

(except Automotive)

o Integration in a single package of MEMS, data converters and RF transceivers for
t t k

*MEMS accelerometers & gyroscopes

Competitive Advantages:

Gyroscopes Games, camcorders, camera
stabilization, GPS

Microphones Games, mobile phones, laptops

smart sensor networks

o Proprietary innovative silicon and packaging technologies for miniaturization
and ultra-low-power fitting medical and portable applications

o First in the world to adopt an advanced 8" inch wafer fab (Agrate)

6

Source: iSuppli, ST

IMS: Power Discrete

Key product family Key target applications

HV Power MOSFETs Power supply, lighting, solar

Rectifiers Power management

Power Discrete Ranking 2009

Power MOSFET (High Voltage) # 1

Protection & IPAD # 1

o The widest range of power technologies and packages from low to very high voltage (MOSFET, IGBT, Bipolar, IPAD, Rectifiers) offering the highest efficiency in ACS switches Home appliances

Protections & IPAD Mobiles, USB/HDMI

interfaces, wired data transfer

Competitive Advantages :

Thyristors # 1

Rectifiers & power diodes # 3

the most demanding applications

o Expertise in composite materials (SiC, GaN) for high frequency and very high temperature applications (electric cars, photovoltaic converters, wind generators)

o Extremely competitive manufacturing machine (Singapore, Longgang, Shenzhen)

7

Source: iSuppli, ST

IMS: Digital

Key product family Key target applications

RFID & RF EEPROMs Access control, tracking systems

Microcontrollers Low-power medical and portable

i

Digital Ranking 2009

EEPROM, EPROM # 1

Smart Card # 3

- o Common technology and high-performance core (ARM(R) Cortex(TM)) platforms for smartcards and microcontrollers

- o Ultra-low-power technology suitable for battery operated and medical applications equipment

32-bit smartcard ICs Mobile phones, data security

Competitive Advantages:

Product portfolio

- o Complete hardware and software solutions for secure applications (STB, banking, access control, NFC)

- o Special set of peripherals for connectivity (RF, ethernet), human machine interface (touch sensing) and real time control (motor control timers)

8

Source: iSuppli, ST

IMS: Key Strengths

- o Analog drivers
- o High voltage power MOSFET
- o Rectifiers

Consolidated

IMS Key Areas

Lighting

Switch mode

power supply

Motor

control

- o Smart power ICs
- o Power transistors
- o Microcontrollers
- o Analog ASSP ICs
- o Microcontrollers
- o Power transistors

9

Secure Mobile

transaction

o IPAD

o MEMS and sensors

o Audio amplifiers oSmartcards

Expanding into New Focus Areas

10

Source: iSuppli, Semicast

Innovation is Still IMS Key Driver

System Innovation

Complete reference designs
(Hardware & Software) for
medium and small accounts

Our System Approach

- o More than 550 reference
designs available to
support our worldwide
design-in activity

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- o Innovative new product definition
thanks to feedback from customer
system know-how

System Innovation in Energy

- o Hybrid Electric Traction
- o Motor drivers
- o Power conversion
- o Battery-cell management
- o Fast battery charger
- o Photovoltaic panel converters
- o SmartGrid

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- o Smart energy metering
 - o Smart appliance plug
 - o Power-line modem
-

System Innovation in Automation

- o Home automation through advanced wired (200 Mbit/s) and wireless connectivity
- o Application Specific Integrated Modules (ASIMs) for robotics and industrial automation
- o Sensor networks for building automation

ASIM

Embedded motor drive module, remotely controlled by ethernet

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- o Low-power energy harvesting and storage

Flexible rechargeable battery

System Innovation in Healthcare
o Remote patient monitoring
o Blood pressure
Portable distributed diagnostics
and remote monitoring
Flexible lens for
eye pressure
monitoring Electro
o Heart beat cardiogram
o Electrocardiograph
o Eye pressure sensor
o Movement reconstruction
o Rehabilitation
Insulin
nano pump
Temperature
sensor
Pressure
sensor
16
o Fitness
o Patient treatment (i.e.
insulin pump)
Movement
recognition
Step counter

Technology Innovation

Emerging Applications Require Smart Integration:
Moore's Law and More than Moore
Sensors, Biochips
Actuators
HV
Analog/RF Passives Power
"More than Moore": Diversification
zation
CMOS: CPU, Memory, Logic
130nm
90nm
65nm
45nm
32nm
SiP
SSooCC
re's Law ": Miniaturi
18
Baseline C
22nm
....
V
Beyond CMOS: Quantum
Computing, Molecular
Electronics Spintronics

ST Enabling Technologies: "More than Moore"

- o MEMS & smart o Flexible ICs
sensors

- o Harvesting & thin film
batteries

- o Advanced BCD,
BCD-SOI

- o New materials: SiC &
GaN

- o Ultra-low-power
technologies

19

- o Advanced packaging &
system-in-package

- o 3D heterogeneous
integration / TSV

- o Microfluidics

Product Innovation

Smart Meters
Smart Meter IC
MICROCONTROLLER
ETHERNET
PORT
INPUT
DSP COPROCESSOR OUTPUT
DATA CONVERTER
Smart Meter IC
System on Chip
POWER SUPPLY PROTECTIONS DISCRETE
COMPONENTS
SOFTWARE
TIMERS ENCRYPTION EMBEDDED
Data Security
ACCELERATOR
ENGINE
VOLT
AMPLIFIERS REG. MEMORIES
ANALOG MODEM
FRONTEND
21
More than 40M smart meters with ST's power-line
modem connectivity already installed in the field
Source: ABI Research, ST
Target Applications:
o Electricity meters
o Water meters
o Gas meters
Smart electricity meters TAM 2009: 76M units
CAGR 2010-2013: ~18%

Micro Inverter Modules

- o Maximizing energy output (MPPT)
- o Energy monitoring (daily, monthly, yearly, etc.)
- o Diagnostic and anti-theft & anti-tearing protection
- o Reducing operation cost due to modularity

Cool Bypass Switch

Micro Inverter

MPPT

Max Power Point Tracker

DC/DC

Remote

Monitoring &

PV Panel Control

Converter

DC/AC

Inverter MOSFET

SiC

PLM

Power Line Modem

Monitoring &

Diagnostics

(Energy Level Faults etc)

Electronics on panel value from \$1.50 to \$15

PV d t i t h

PLM

Target applications:

- o Level, Faults, etc.) energy production growth
- o 2010 a(3) about 7 GW
(~35 million single photovoltaic panels)

- o 2020 a(3) about GW

22

Source: European Photovoltaic Industry Association, ST

LED Lighting Driver ICs
Driving LEDs using AC-DC solutions
.... more light with
Luminous efficacy
LED >100 lm/W
Driving LEDs using DC-DC solutions
g
less energy
TL 70 lm/W
CFL applications:
LED Array Drivers
50 lm/W
Target o Display & signs
o General illumination
o Backlight LED TAM 2009: 63B units
Filament 15 lm/W
o Signal lighting
Source: iSuppli
CAGR 2010-2013: 30%

Motherboard Power Management ICs
o Enabling next generation motherboard
power management solutions
Multi Segment ICs Motherboard Dedicated ICs
CPU power management
controllers
High density DC-DC
controllers
High efficiency switching
regulators
Single and multi phase DCDC
controllers Multi output controllers
Multi output regulators
LED backlight drivers
Low power consumption
switching regulators
Server
24
TAM 2009: \$2.6B
CAGR 2010-2013: ~12% Source: iSuppli
Target applications:
o Desktop
o Laptop
o Server
Laptop Desktop

MEMS Gyroscopes
Driving direction Sensing direction
No Angular rate
(Pitch axis)
Angular rate
(Pitch axis)
Target applications:
S t h
25
Source: iSuppli
TAM 2009: ~\$526M
CAGR 2010-2013: ~13%
o Smart phones
o Robotics
o Navigation
o Cameras
o Gaming

Microcontroller "STM32W"

.... embedding radio

frequency function

o IEEE 802.15.4 open flexible reconfigurable platform

Low power microcontroller

product family, ...

Target Applications:

o Smart meters

o Home & building automation

26

System-on-Chip solution

Microcontroller, radio and firmware

o Wireless sensor networks

o Healthcare

o Consumer

o Remote control

o Home automation 32-Bit MCU* TAM 2009: \$3.8B

Source: WSTS CAGR 2010-2012: >10%

*Includes Automotive

Flexible Eye Lens for Glaucoma
7.5 age
Population and aging increase
Flexible Lens IC for wireless sensor
for Continuous eye pressure monitor
o Contact lens (30m thickness)
27
Therapeutic sales for
ophthalmology disorders exceeded
\$12B in 2009
Over 7.5 million suffer from age-related
macular degeneration
o Pressure sensor
o Continuous remote monitoring
o Very low-power RF data transfer
Source: World Health Organization
Target applications:
o Remote patient monitoring

3D Ultrasound Scanner ICs

- o Miniaturization and low-power ICs allow electronics migration from centralized computer to ultrasound beamer

Old System New System

Solution Integrating:

- o Power management IC array

- o Microcontroller

3D Image 2D Image

28

- o Analog front-end and data converter

Source: Semicast

TAM 2010: 83M units

CAGR 2010-2013: 11%

Target application:

- o Echographs with color and 3D

Integration

- o Focus on high-margin segments (energy, automation, healthcare)
 - o System approach to deliver complete solutions to the market
 - o Boost high-performance, high-margin analog products leveraging on our IMS Strategy
- strong position in MEMS and power management
- o Pervade the market with microcontrollers and secure access products based on ARM core leveraging on:
 - o Ultra-low-power technologies for portable and healthcare applications
 - o Complete set of analog peripherals including wireless connectivity
 - o Maintain our leadership in power discrete supporting:
 - o High-volume and cash-generating products
 - o New high-margin products utilizing new materials (SiC and GaN)
 - o Improve profitability towards high teens operating margin by the end of 2010 and above 20% in the mid-term
-

TOWARDS TRANSFORMATION
Gilles Delfassy, President & CEO

2009: FORMATION

2010: TRANSITION & TRANSFORMATION

FIRST QUARTER SUMMARY

- o Net sales \$606 million
- o Adjusted operating loss \$114 million

Net sales

Adj. oper. loss

- o Net cash \$120 million
- o Restructuring plans on track
- o ~((50% savings of \$230 million plan
- o \$115 million plan savings from H2

2010

Q1

2009 2010

Q1

Q2

Q3 Q4

3

- o R&D efficiency program
- o Integration of IT systems

2009 (Pro-forma):

Net sales: \$2.7B

Adj. operating loss: \$440M

June 3, 2010

2010 PRIORITIES

Competitive cost structure

New portfolio

Pursue profitable growth

4

u sue p o t a b e g o t

Focus on priorities and fast transition

June 3, 2010

TRANSFORMING THE COMPANY

E & f h o High-value entry

- o Smartphones
- o Connected devices
- o Application engine
- o Modem
- o Connectivity
- o Diversified customer portfolio
- o Open/complete platforms
- o Entry feature phones
- o Modem only
- o Three big customers
- o Custom solutions

5

p p p

o Europe and Asia o Global

June 3, 2010

MOBILE PLATFORMS AT THE HEART OF CONVERGENCE

6

Manage the complexity is crucial

June 3, 2010

DELIVERING COMPLETE PLATFORMS IS KEY

Connectivity

GPS, Bluetooth, HDMI

WiFi, USB, FM

Multimedia

3D graphics, HD video,

audio, imaging

Power management

and RF

Modem

2G, EDGE, WCDMA,

TD-SCDMA, HSPA+, LTE

Processors

Multi core architectures,

5000DMIPS

low-power consumption

Software

Open OS web browsing

7

OS, Requirements on wireless semiconductor players are evolving accordingly

June 3, 2010

ENABLING A CONNECTED WORLD

Thin

Modems

Platforms

LTE / HSPA+ Mobility

Best combined UL/DL
performance

Data in every region

M720

LTE/HSPA

M340

HSDPA

M570

HSPA+

M700

LTE

DRIVING MOBILE BROADBAND

EVERYWHERE

Mobile Broadband and M2M Devices

UMTS/ 2G/EDGE

HSPA

LTE TD-SCDMA

Entry

Application

Processor with

Integrated

Modem

Platforms

High-performance

Smartphone platforms

U8500

2 (multiply) 1GHz

HSPA+

U68XX

5209

EDGE

M6718

TD-HSPA

U67XX

U6715

U5500

2 (multiply) 600MHz

HSPA+

TD

THE BEST SMARTPHONE PLATFORMS

FOR ALL TIERS

High-end and mid range smart devices

8

Y

Platforms Internet and Multimedia

enabled solutions

Single-chip 2G & EDGE

HSDPA

U33x

HSPA/HSDPA

WCDMA

T72XX

TD-HSDPA

HSDPA
E4908
EDGE
G4850/52
GSM/GPRS
E4910
EDGE
T6718
ADDING VALUE TD-HSPA
TO AFFORDABLE DEVICES
High value entry devices
June 3, 2010

PLATFORM PORTFOLIO

Thin

Modems

Platforms

In Production Announced

LTE / HSPA+ Mobility

Best combined UL/DL

performance

Data in every region

M720

LTE/HSPA+

M340

HSDPA

5209

EDGE

M570

HSPA+

M700

LTE

M6718

TD-HSPA

UMTS/ 2G/EDGE

HSPA

LTE TD-]SCDMA

Entry

Platforms

Application

Processor with

Integrated

Modem

Platforms

Internet and Multimedia

enabled solutions

High-performance

Smartphone platforms

U8500

HSPA+

U68XX

HSDPA

U67XX

WCDMA

U6715

HSDPA

U5500

HSPA+

TD

9

Connectivity and

Enhancements

CW1200 Complete Platforms

WLAN

CG2900

BGF

AV5230

Audio PTE

AV8100

HD TVout

Single-chip 2G & EDGE

U33x
HSPA/HSDPA
T72XX
TD-HSDPA
E4908
EDGE
G4850/52
GSM/GPRS
E4910
EDGE
T6718
TD-HSPA
June 3, 2010

ADDING VALUE TO AFFORDABLE DEVICES

More features at low cost
High-value entry devices
Enhanced connectivity and multimedia
Integration to single-chip
Best-in-class power consumption
Smart multimedia for all
Linux/Android(TM) support
WQVGA screens, touch-screen and H.264 video
HSDPA for fast content sharing
10
Single-chip ultra low
cost
Dual SIM/Dual standby
USB charging
Single-chip Quad-band
EDGE
Low power , MM touchscreen
QVGA & 3Mpixel camera
G485X E49XX
Affordable
Linux/Android
HSDPA
WQVGA & 5Mpixel
camera
U6715
TD-HSPA
Quad-band EDGE
WQVGA & 5Mpixel camera
T6718
June 3, 2010

HIGH VALUE ENTRY GAINING MOMENTUM

U6715

- o Ramping with four new customers in Asia
- multiple models

- o Interest from operators across the globe

E49xx

- o Two top customers for EDGE & GPRS versions

11 June 3, 2010

Affordable

Linux/Android

HSDPA

WQVGA & 5Mpixel

camera

U6715

Single-chip Quad-band

EDGE

Low power , MM touchscreen

CONNECTIVITY INTEGRATED INTO COMPLETE
PLATFORM SOLUTIONS

- o Selected by two additional U8500 customers
- o Further momentum coming from Asia

12 June 3, 2010

BT/FM/GPS

First 45nm Combo

Leading footprint size

CG2900

802.11a/b/g/n

(50mm2 BOM

Integrated FEM, SMPS

CW1200

HDMI/CVBS combo

Full HD 1080p

7.1 audio surround

AV8100 AV5230

102 dB SNR

Integrated headset AMP

Playback Time Extender

THE BEST SMARTPHONE PLATFORMS FOR ALL TIERS

U8500: Top performance at low power
High and mid-end smart devices
Dual-core processors >1GHz
HD-multimedia 1080p
Full web-browsing experience
Mobile broadband with HSPA+
Powerful 3D graphics - OpenGL ES 2.0
Touch displays, dual screen
Complete solutions with Open OS

13

Dual-core SMP Cortex A9

HSPA+

1080p HD & advanced 3D

Dual-screen support

U8500

TD-HSPA

HSPA+

LTE

Thin modems

Affordable Linux/Android

HSDPA

WQVGA & 5Mpixel camera

U6715

Dual-core SMP Cortex A9

HSPA+

720p HD

Advanced 3D

U5500

June 3, 2010

U8500

THE MOST ADVANCED SMARTPHONE PLATFORM
U8500

- o Selected by two additional customers
 - o Four customers overall since launch
 - o Supporting various OS
 - o Symbian and Linux, incl .Android
- 15 June 3, 2010
-

DRIVING MOBILE BROADBAND EVERYWHERE

Connected devices and embedded mobility

Advanced modems

HSPA+ mobile broadband for all devices

LTE, the next evolution for high-speed data

TD-HSPA broadband modems for China

Optimized modems for numerous applications

Modem technology from GSM to LTE

Supporting devices from smartphones and netbooks to
consumer electronics and M2M

16

LTE /HSPA+

Proven hand over

100 Mbps

HSPA+ 21 Mbps

Simultaneous full speed

UL/DL

Best in class thermal heat

Dual mode

TD-HSPA & quad band

EDGE

M720 M570 M6718

June 3, 2010

DRIVING MOBILE BROADBAND EVERYWHERE

M570 - M720

Multiple design wins for our advanced modem solutions

17

HSPA+ 21 Mbps

Simultaneous full speed UL/DL

Best in class thermal heat

M570

LTE /HSPA+

Proven hand over

100 Mbps

M720

June 3, 2010

ADDRESSING MODEM EVOLUTION

Challenges

Increasing air
interfaces

Then Now

TD

LTE

HSPA+

New ST-Ericsson

ltd

- o Software-defined radio access

- o LTE 100Mbps, HSPA+ 42Mbps

- o Target >2X power

improvement

- o Scalable for cost

Power management

needs

2G

2G/3G

EDGE multi-mode modem

architecture

Increasing adoption

BT of connectivity

FM

BT

GPS

WIFI

- o Co-existence built-in

- o Combos & platform

integration

Increasing

adoption of

connectivity

18

- o Building on existing LTE

solution

- o Single SW and HW platform

- o Drastic reduction of testing

Size & cost

June 3, 2010

2010 PRIORITIES

- o Competitive cost structure
- o New portfolio
- o Prepare the company for future, profitable growth

19

Focus on priorities and fast transition

June 3, 2010

Region Americas:
The Land of Opportunity
Robert Krysiak
General Manager, Americas Region

Americas 2009 TAM: \$35B

Military/Space

Automotive

4%

Top 10 Americas OEM

2009 Spending

Top 10 OEMs:

~62% of TAM

Computer

Platforms

36%

Consumer

7%

Industrial

7%

Medical

4%

10%

2

Source: iSuppli

Computer

Peripherals

Wireless 6%

15%

Americas Forecast

o Consumer CAGR ~ 16%

driven by:

o Game consoles

o LCD TV

A t t i CAGR 12%

o Americas TAM

o 2009-2014 CAGR ~ 7%

o Automotive ~ 20,000

30,000

40,000

50,000

60,000 TAM Revenues Forecast

1.0

1.2

1.4

1.6

1.8

2.0

2.2

Application Growth Forecast

US\$M

3

Source: iSuppli

0

10,000

2009 2010 2011 2012 2013 2014

0.8

2009 2010 2011 2012 2013 2014

Automotive Consumer Data Processing

Industrial Wired Wireless

Americas Ecosystem Strength
Design Houses
Venture Capital
Startups
ederal Stimulus
Universities
OEMs
Regulatory
4

North America Economic Environment

US Trade Deficit

o Deficit growth is validating the evidence of recovery from the worst global recession since World War II

o US exports grew faster than imports in 2010 despite a stronger \$ vs. (euro) driven by industrial supply, farm products, semiconductors and strong expansion in China

US Imports

o Impacted by lower crude oil prices

US Unemployment

o Rose to 9.9% in April from 9.7% in March

ST Americas end-of-quarter BiBA:

doubled from Q1 2009 to Q1 2010

5

ST Americas: Revenues Trend

- o ST Americas is growing the Domestic market while leveraging the "Design Influence" to expand offshore growth
- o Bridging Americas with China and A/P on common strategic plans
- o 1Q10 affected by seasonality

Americas Domestic Revenues =

US\$M 13% of ST

"Design

Influence"

1Q09 2Q09 3Q09 4Q09 1Q10

Domestic WW

Influence

6

Americas
Computer Peripherals & Communications
Infrastructure

Communications
Communications Infrastructure
\$100M
Leading Americas
i ti
ST well positioned
L di A i
Smart Phones
ST Americas:
2012 potential new
business target
\$120M
communications
players:
Cisco, HP, Google,
Microsoft,
Facebook, etc.
Mobile data traffic
to increase 39X
from 2009 to 2014*
to outperform the
market utilizing
32nm ASIC IP
portfolio & SPEAr
platform
ST Americas won 3
major 32nm ASICs
in Q1 2010
Leading Americas
smart phone
players:
RIM, Apple,
Motorola &
HP/Palm
Apple & RIM
account for >50%
of cell phone
manufacturer's
operating profit
ST Americas
mainly provides
MEMS solutions
and Imaging
products
ST Americas
ramping innovative
gyroscopes in Q1
2010
Source: Cisco
8

SPEAr - New Flexible ARM Cortex Platform
Structured
ASIC
2 x ARMv7
SPEAr1600
Industrial
Automation
Telecom
Networking
D ki
VoIP/Videoconference
Security
MID
SPEAr1320
SPEAr1310
SPEAr1300
SPEAr1340
\$50M
ST Americas
targeting key
players
IP Processing
VoIP
Smart Meters
High-end
Docking
Thinclient
Net-PC
SPEAr2A9
SPEAr1330
ST Americas:
2012 potential new
business target
Residential
Gateways
Access Points
9

Computer Peripherals
Leading Americas
Shifting from
disposable to
permanent print
ST is leading
ST expanding in
Digital & Analog
ASICs Secure
Printers
+integrated WiFi
\$150M
Printer Players:
HP, Lexmark,
Kodak
heads and from
wired to wireless
connectivity
semiconductor
supplier offering
complete solutions
ASICs, Micros, Touch
Sense, WLAN &
Power
Data Storage Samsung
Electronics
9%
Western
Digital
Top 5 HDD OEMs - Q110*
ST Americas:
2012 potential new
business target
Leading Americas
HDD Players:
Western Digital,
Seagate
2010 market to grow
19% driven by
increased data
demand - video,
mobile & cloud
storage*
ST provides Digital
ASICs and custom
power products to
the market leaders
Source: iSuppli
Toshiba/
Fujitsu
11%
Hitachi
Seagate 18%
31%
31%
10

Americas:
Consumer

Consumer Convergence

- o Mobile Internet Devices (MID); Smartbooks, Tablets, Netbooks...transforming the way consumers work/play
- o In 5 years MIDs will dominate the semiconductor TAM in the new PC/Consumer market
- o Apple, PC OEMs, Microsoft, Google, and their ODMs will be the dominate players in the MID market

Video Peripherals Power Security Custom

ST Selected Products

3D Graphics

Codecs

MEMS

Display Port

Touch/proximity sensing

System Power

TPM

Brand Protection

Encryption engine

Near Field Power

Security

Peripherals

LED/OLED Drivers

AC/DC controllers

Advanced ARM

processors

Image Quality

12

STi7108: Best-in-Class H.264 SoC for STB
o 2000 DMIPS host performance
o Integrated 3D Graphics GPU
o Enhanced Video
Set Top Box
ST ki
o 1080p60
o Full motion HD 3DTV
1st ST product with ARM Cortex-A9 due in H2 2010
\$110M
Combining
traditional STB
services with
Internet
Expanding the
Consumer
experience with
stereoscopic
vision
ST product
roadmap tuned
for new features
and services
working on
current/next
generation set
top box
platforms with
top US OEMs
ST Americas:
2012 potential new
business target
13

MEMS
Pervasion of
i
Motion sensor
k t Integration of
MEMS d t
ST Americas
hi i l
MEMS
\$200M
MEMS in
consumer devices
continues to
significantly
increase
market CAGR
(2009-13) of 15%
and 19% for
accelerometers &
gyros, respectively
MEMS, data
converters & RF
transceivers is
competitive
advantage
shipping large
volumes of
accelerometers &
ramping gyroscopes
in Q1 2010
ST Americas:
2012 potential new
business target

Americas:
Automotive

Auto Communications
#1 in
#1 in
Satellite
Radio
Strategic
supplier of
GPS to
Garmin
Innovation in
auto
communications
market is lead
by the Americas
Consumer
Power
Amplifiers
GPS
device
connection

Auto Safety
Advanced
battery
charging
Silicon partner
for Mobileye
Partner with
Navteq for ADAS
Innovation in
auto safety
market is
lead by the
Americas
Unique
data
Energy
efficienc
GaN
partnership
for advanced
power
solutions
solution to
LG
mapping
utilization
efficiency
with
PEV/HEV
17

Automotive Market
US autos are Advanced Build on our
t iti
ST Americas
i i k t
Automotive
\$140M
BCD
VIPower
MPU
32BIT MCU
leaders in silicon
content and
vehicle
production
concepts utilizing
GPS, car-to-car
and grid
communications
strong positions
via partnerships
and offer a full
range of system
components.
gaining market
share in MCUs and
achieved major
powertrain MCU win
at a US OEM
Growth by Technology Family
ST Americas:
2012 potential new
business target
2009 2010 2011 2012 2013 2014 2015

Americas:
Industrial & Medical

LED Lighting
Great potential
9.5W LED replaces
i d t
ST is #1
li t t Major design wins
LED Lighting
\$45M
200
250
300
in general
illumination
with 2009 to
2012
CAGR>90%
80W incandescent:
market price (\$35,
payback time (lyr &
15 year bulb life
supplier at top 5
lighting
worldwide
manufactures
in US region
generating
potential billing
growth with
CAGR)300%
LED Driver Market
ST Americas:
2012 potential new
business target
0
50
100
150
2009 2010 2011 2012
General Illumination Rest of Mass Market
Source: iSuppli

SmartGrid:
Stimulus and Innovation Driving Growth
L t t h i B d
ST: top 5 supplier
t t t
SmartGrid
\$90M
~\$3.4B in stimulus
funding will drive
>20% growth*
Largest growth
opportunity in
ZigBee/PLC/WiFi
nodes
ST is a Board
member of ZigBee
and HomePlug
Alliances
to US smart meter
OEMs & 1st
supplier of
sensing
technology
Network Security
& Encryption
ST Americas:
2012 potential new
business target
J2293
Smart Meter
PHEV
Charging Source: ABI

Smart Meter Solutions & Deployment
Country (Utility) Customers (deployment)
Italy (Enel) - ST7538/40 PLM-based meters 27M (complete)
US (SCE, Duke, SDG&E, AEP, PG&E, FPL, etc) 40M (2015), 70M total
China 200M (2015)
M i (IUSA) STM32/STPM01b d 3 5M (2009) 4M (2010) 20M t t l
SPEAR
STM32
StarGrid PLC
Mexico - STPM01-based 3.5M 2009), 2010), total
Spain (Endesa, Iberdrola) - ST7570/90-based 22M (2015)
Brazil (ELO) - Echelon PLM-based 60M (2021)
France (ERDF) - ST7570-based 35M (2015)
Model BOM (\$) Features
Low End 5 Manual read
Mid R 10 AMR (1)
STM8S
Power Management
Metering
STM32W ZigBee
Display
Current Sensing
Voltage Sensing
STPMxx
SPEAR /
Range 1-way)
High End >15 AMI / IP Interactive
Energy Management Power Line
Modems
ST75xx
StarGrid SoC
PRIME
Real Time Clock
+ Temp Sensor
STPMxx STM32
or
STM8
ZigBee
STM32W
Power Management
VIPerXX / LXXXX
22

Healthcare: e-Health/Remote Monitoring
Consumer home New markets:
di
Engaged with top
i l t bl
Healthcare
\$130M
health & remote
patient monitoring
driven by insurance
reimbursements
cardiac
monitoring, drug
delivery &
portable
ultrasound
Major MCU design
wins in Home
Health Care
implantable
device OEM &
diabetes
management
leaders
Bluetooth
DUN
GPRS
Internet
Care
Server
Band-aid or
T-Shirt
ST Americas:
2012 potential new
business target
Internet
ADSL
User IP Box Doctor/User PC
Off-body
sensors
Bluetooth
Bluetooth
SPP
23

Embedded MCU
Broad portfolio
of processor
cores
EnergyLite (TM)
MCUs
State-of-the-art
process
technologies
Wireless and
RF
Key growth segments: energy management, healthcare & consumer
STm32/8/Spear \$275M
MCU (US\$M)
p ST Americas:
2012 potential new
business target
ST
doubling
MCU
share
24

Brand Protection Solutions:

Counterfeiting, a Growing Financial Loss

Secure

Microcontrollers

Secure O/S

Development

State-of-the-art

process

technologies

Key

Management

Key growth segments: Computer Peripherals, Accessories and Medical

\$100M

ST Americas:

2012 potential new

business target

25

Sense & Power Strategy Outlook

High

Voltage

Switches

Power

Management

SoC for

Battery Packs

Connectivity

Innovative Audio

Amplifiers with

embedded

CODEC

Application

Specific Data

Converters

Growth across multiple segments: Computer, Consumer, Communication & Healthcare
\$60M

ST Americas:

2012 potential new

business target

26

Americas:
Distribution

Customer Reach

- o North American Distribution network: 90% of the market
- o 3 global distributors
- o Merchant Distributors: 15,000 customers
- o Catalog Distributors: 60,000 customers
- o ST is #2 broad-line supplier in NA

ST Sales Growth vs. Market

Distribution

broad o Sales Growth

- o #6 ranking in Q110
 - o +80% growth of sales to Distributors over 2009
 - o Profitability
 - o Systematic price increases accelerating margin growth
 - o New Product Design in
 - o #1 in Sales and Design in of ARM 32bit
 - o 70% Growth in Power MOS
 - o +100% Growth in High Reliability/Space
- 2009 2010 2011

ST Market

ST Market

New

Markets

Alternative

energy Lighting

Asset

tracking &

navigation

Medical >\$50M in

2010

- o New Market Penetration

Source: Lively Report, Shared Market Data

28

Key Takeaways

- o Increasing Demand Creation
 - o Reshaping the team, adding more local design
 - o Defining new products for the local market
 - o New Products
 - o New generation of MCU's
 - o Advanced digital and analog ASIC's
 - o New generation of MEMS
 - o Connected platforms (WiFi, MoCA, PLM) like 7108M and SPEAr
 - o Brand protection secure micros
 - o New Markets and Applications
 - o Smart energy
 - o Cloud computing
 - o Healthcare
 - o Internet-based devices
 - o Gadgets & gaming
-

Automotive Products Group
Paul Grimme
General Manager, Automotive Products Group (APG)

Automotive Inside ST

ST Q1 2010 sales

100% = US\$2.325B

14%

12%

12%

8%

35%

19%

2

* Sales recorded by ST-Ericsson and consolidated by ST are included in Communications and Distribution

Automotive Computer

Consumer Industrial & Other

Communications* Distribution*

ST: #3 in Global Automotive IC's
ASIC-ASSP, MCU, MPU, VIPower, RF, Vision Sensors, DSP
Products
Power Train
Engine Transmission
Door Modules,
Anti-theft
Lighting,
Wipers
Body
Electronics
HVAC,
Cluster
Chassis-Safety
Braking
Steering
Airbag
Infotainment
Car
Infotainment
PND
Telematics
GPS
Customers Applications Segments

Automotive Competitive Environment

o Inside its specific perimeter, APG became WW leader in 2009

Rank Company

- 1 Infineon
- 2 Freescale
- 3 ST

Rank Company

- 1 ST
- 2 Freescale

Restricting to 3 Infineon

Ranking

General Stability

- 4 NEC
- 5 Renesas
- 4 Renesas
- 5 NEC

power +

analog +

digital

Competition

o Common enablers for leadership

Technology

+ Products

BCD, VIPower

ASIC portfolio

MCU roadmap

Infotainment

Strategy Innovation

Partnerships

4

- o Broad range offer
- o Quality and relationships
- o ST is recognized as having a strong, wide range network of Tier-1 customer

Car Market: After the Crisis

WW Data

o 2009 consumption was strongly incentivized by the world's governments

4.3%

5.7%

-4.2%

-13.0%

9%

7%

4.7%

55

60

65

70

75

80

Excluding China,

production dropped 20%

o Production fluctuation was much bigger than that of sales

o Positive signals now seen

o Very positive Q1 pace in NAFTA and Asia

o Platform developments restarted

50

2005 2006 2007 2008 2009 2010 2011 2012 2013

5

o Developing countries are growing faster than EU and developed Asia

Source: Global Insight

Automotive Market Growth Factors

More Cars, More Electronics

CAGR 2009-2016:

Cars: 6.2%

Electronics: 8.5%

250 Silicon: 10.2%

270

283

298

311 319 325 333

20000

25000

30000

35000

arket (M\$)

ASIC-ASSP

MCU

Power

Sensors

Electronic ignition

Electronic gearbox

Air conditioning

Antilock brakes

Navigation

Adaptive cruise ctrl

Airbags

Stability control

Night vision

Telematics

Bluetooth

Start/stop

Pedestrian detection

Lane change

Driver assist maps

Car 2 car

Internet

Brake-by-wire

Steer-by-0

5000

10000

15000

2009 2010 2011 2012 2013 2014 2015 2016

Silicon Ma

Standard

Others

Silicon/Car (\$)

1975 1985 1995 2005 2015

Central locking

Car radio

Seat heating

Automatic mirror

Xenon light

Hybrids

LED lighting

Steer by wire

Electric vehicles

25M cars 32M cars 36M cars 64M cars 86M cars

Source: Strategy Analytics

2010-2015 - Macro-trends in Automotive

Innovation fueled

by social

A Global, Cost-

Driven Market

responsibility

Saving energy, saving lives

New automotive concept, fast

moving markets for cars &

electronics

Innovate

Car electrification

The safe and connected car

Simplify, Speed

up

The Small Car

The Low Cost Car

A Global Supply Chain

7

Future winners shall be leaders of both processes

Join innovation eco-systems, Manage new market dynamics and standards

2010-2015 - Macro-trends in Automotive

Innovation fueled

by social

responsibility

Saving energy, saving lives

Innovate

Car electrification

The safe and connected car

8

Leveraging partnerships with the industry leaders

Co-development as a model matching technology with know how

Strategy

- o Build on our strong positions via partnerships
- o Complete a full range of system components

Electric Power

Steering

Electric oil,
water, fuel
pumps

Electric

Parking

Brake

Green Car

Innovation Fueled by Social Responsibility

ST Response: Technologies

Product

- o Technology portfolio as first enabler
- o Market position: ASIC, vision processing, GPS
- o Tech portfolio: MCU, power, camera, RF, sensors
- o Partnerships: global leaders (Tier 1 and OEM)
- o Key Actions
- o Partnership with key IP companies

Smart battery
charging

Engine

start-stop

Control

Pedestrian Detection

Safe Car

- o Electrification / safety joint programs
- o Government funded projects

Connected Car

9

Innovation Fueled by Social Responsibility

ST Response: A Test Case

Application: stability
control for Japan

o Target is to allow an
optimized ESC for all car

ST strategy: win with
innovation

o Silicon technology: BCD8,
0.18um, copper metalization

Result: a first silicon
success

o Joint development team
p with customer
segments

o Super-integrated IC with
power (>5W) + logic
(>100K gates)

o Tough requirements on
performance, price, timing
pp

o Package: HiQuad110(TM),
copper wires, life guaranteed
@175(degree)AEC

o Re-use of consolidated,
successful architectures

o First silicon fully
functional, able to run
winter test in Q110

o Over \$100M lifetime value

2010-2015 - Macro-trends in Automotive

A Global, costdriven
market

New automotive concept,
fast moving markets for
cars and electronics

Simplify, speed up

The small car

The low-cost car

A global supply chain

11

Adapting to the "new" world of Automotive

Different support needs, cost positions, geographies

A Global, Cost-Driven Market
ST Response: Ease Of Use For Cost, Time to Market
o Strategy
o Engineer the portfolio to decrease system cost/complexity
o ST advantages and actions
Integration
Systems-inpackage
Systems-on-chip
sense + power
o Strong partnership with market leaders
o Unique and strong ASIC history
o Action: local development in geographies where growth is occurring
o Strategy
o Support market newcomers with standard low time to
Full Solutions
Systems on Target to grow
WW leadership in
airbag and small
MCU engine control
power
peripherals
solutions to allow fast and low-risk time-tomarket
o ST advantages and actions
o Unique ASSP portfolio covering all segments
o System understanding of basic applications
o Action: engineering and starter kits
Full IC kit
HW + SW
support
Target to grow
leadership in
BRIC engine
control

A Global, Cost-Driven Market
ST Response: A Test Case
Year 2005: start of
new partnership
o Target: engine control for
Chi 4 li d
Year 2007: new
system ready
o Production begins
Year 2009: reached 60%
of internal market share
o ECU is present on
China 4-cylinder car successful Chinese vehicles
o Fully Chinese system
development team
o Requests to ST: support,
speed, value
o ST provided all
semiconductors, plus SW /
HW support
o Joint technical team coworked
for two years
o Solution proved to be
competitive in other regions
2 14
31
58
65
Revenues (M\$)
2007 2008 2009 2010 2011
13

APG - Main Growth Drivers & Expectations

- o Above market growth
- o Smart Power technologies will continue to be a main driver

Growth by Technology Family

MPU

32BIT MCU

- o Digital products add growth
- o MCU
- o MPU (ADAS, Infotainment)

o New market enablers are now being added to APG traditional portfolio

2009 2010 2011 2012 2013 2014 2015

- o In the future, further leverage in new technologies is planned
- o PMOS, IGBT
- o Sensors

14

Automotive electronics will be a continuing growth market, driven by vehicle demand and content per vehicle

Closing Comments

- o The market crisis in 2009 did not change the fundamentals, however it accelerated existing trends
- o Innovation and ease of use solutions will be critical components of growth for automotive electronics
- o The global supply chain is being re-shaped by shifting tastes and geographic locations of consumers
- o ST is among the few companies having all assets in place to turn this changing period into one of decisive growth

15

Digital and Analog ASICs
Gian Luca Bertino
General Manager,
Computer and Communication Infrastructure Product Group (CCI)

Leader in Digital and Analog ASIC
CARTRIDGE HDD PRINTER NETWORK
Motor
Controller
Digital
ASIC
BS RF &
Active
Print
Heads
& Head
Drivers
BCD
& SOC
HCMOS
Cables
Drivers
MFLD BICMOS
TOP 1 TOP 2 TOP 3 TOP 3
2

Market Trends and Strategy in ASIC

- o Cloud computing will fuel the next wave, generating increasing demand for (green) infrastructure and transforming all applications in cloud conscious clients
 - o ASIC continues to be an effective win win model for CCI customers and ST Cloud Computing Web Connected Internet Traffic Green Systems
 - win-continues to be committed to it
 - o The strategy: expanded product offering and flexible business model
-

CCI Performance Through the Crisis

80

100

120

100

200

60

Q407 Q409

Revenues (relative to Q407)

0

Q407 Q409

Operating Profit (rel to Q407)

100

105

110

60

80

Q407 Q409

HDD Revenues (rel to Q407)

95

100

Q407 Q409

Other Revenues (rel to Q407)

Leading by Technology Acceleration
System-On-Chip

40%

60%

80%

100%

32nm

40nm

55nm

65nm

60%

70%

80%

90%

100%

BCD8 18

0%

20%

2007 2008 2009 2010 2011

90nm

110nm

>=130nm

0%

10%

20%

30%

40%

50%

2007 2008 2009 2010 2011

..18u

BCD6 .35u

BCD5 .50u

5

CCI Growth Drivers
BiCmos ASIC
for AOC and RF
PrintHeads for
InkJet Printers
Digital ASIC for
Networking
Printer SOC and
SPEAr eMPU
6

BiCmos ASICs for Networking

- o Leveraging best-in-class

BiCmos technologies from

ST technology portfolio

140

- o BiCmos7RF: State-of- the- art performances for both noise and linearity

- o BiCmos9MW: 100G Ethernet

Optical Link successfully demonstrated

- o Consolidating ST presence

80

100

120

in RF COTs for application

in wireless base-stations

- o Growing in the area of active cables

60

Q407 Q409

Revenues (Rel to Q407)

7

PrintHeads for InkJet Printers

140

160 o Expanding ST leadership
in thermal printheads

o Best-in-class microfluidic

80

100

120

Best in technology

o Strategic partnerships
with multiple customers

o Revenue growth very
material in 2009

60

Q407 Q409

Revenues (Rel to Q407)

o Investing in Piezo
technology to address
new markets

8

Digital ASIC for Networking
100 o Enterprise market slower
than consumer to go back
to pre-crisis

70

80

90

o Anticipating strong growth
from 2010 onwards,
fueled by multiple wins in
65nm reaching production

o Launching 32LPH, first
32nm bulk process for
networking applications

60

Q407 Q409

Revenues (Rel to Q407)

g pp

o Launching S12, first
12.5GBit/sec SerDes in
32nm bulk process

9

STMicroelectronics Announces 32nm Design Platform for Next-Generation System-on-Chip ICs for Networking Applications

Geneva, May 25, 2010 - STMicroelectronics (NYSE: STM), a world leader in high-performance System-on-Chip (SoC) ICs, today announced full availability of a 32-nanometer (nm) technology platform for the design and development of leading-edge application-specific integrated circuits (ASICs) for networking applications. Central to the new 32nm SoC design platform, which implements ST's 32LPH (Low-Power High-performance) process technology, is the industry's first Serializer-Deserializer (SerDes) IP available in 32nm 'bulk' silicon. Enabling very large ASIC designs, greater than 200mm², ST's new 32nm 32LPH ASIC design platform enables an unprecedented mix of high performance, high complexity, low power consumption and reduced silicon real estate per functional block. The platform is designed to accelerate the development of next-generation ST's Next Generation Platform

generation networking ASICs used in high-performance applications such as enterprise switches, routers and servers as well as optical cross-connect and wireless infrastructure applications.

"With the introduction of the 32LPH platform, ST is enabling the next generation of equipment for communication infrastructure applications, which requires highly integrated ASICs that can satisfy the increasing demand in performance, while also meeting extremely challenging power consumption and silicon integration goals," said Riccardo Ferrari, Group Vice President and General Manager of ST's Network and Storage Division. "We are extremely encouraged by the strong interest that customers are demonstrating for this platform, which has already gained key design wins."

ST's SerDes IP, called S12, is a key piece of intellectual property that has already been successfully demonstrated in labs at selected key customers. The S12 IP is vital for the development of ASICs for networking applications and enables chip-to-chip, chip-to-module and backplane communications in networking equipment designs.

"ST is the first silicon supplier to bring a full design platform in a 32nm bulk-silicon process technology to the communication infrastructure market, including a next-generation predictive ASIC top-down design methodology, together with a full set of proven IP blocks such as a SerDes and embedded DRAM, successfully developed over many years by ST in previous technology nodes," said Philippe Magarshack, Technology & IP R&D Group Vice-President, Central CAD & Design Solutions GM, STMicroelectronics. "ST's Technology R&D center in Crolles, France, has been instrumental in accelerating the completion of the 32LPH platform where low-power technology meets the high-performance requirements of networking applications, while still enjoying all the cost benefits of high-volume manufacturing. In addition, we have partnered with selected EDA vendors to offer networking customers the benefits of a predictable ASIC turnaround time, including fast virtual physical prototyping, and 32nm-class timing, signal and power integrity sign-off."

The first ASIC prototypes implemented in ST's 32LPH process technology are expected early in 2011 production ramp-up in the second half of 2011.

Further Technical Information

ST's 32LPH (Low-Power High-performance) design platform for networking applications supports up to 10 metallization layers to increase routing efficiency. The platform is based on the 32nm High-K Metal Gate process developed within the framework of the ISD alliance, but also incorporates specific IP and devices from ST, such as embedded DRAM with 10-Mbit per square millimeter density and Ternary Content Addressable Memory (TCAM).

Printer SOC and SPEAr

140

160 o SPEAr family now expanding
with the launch of the 1300
series

80

100

120

o Enabling flexible ASIC models
into multiple applications

o Decreasing cost of ownership
to customers

o State-of-the-art SOC
architecture

o Anticipating continuous growth
i f d f l d b

60

Q407 Q409

Revenues (Rel to Q407)

moving forward fueled by
recent wins in printer SOCs
and increasing revnues from
the SPEAr family

11

SPEAr Enables Multiple Business Models

Traditional

ASIC

Flexible

ASIC

Embedded

Processing

MCU

eMPU

ASIC

STM32

STM8

SPEAr

SPEAr (TM)

Flash, SRAM

SDRAM, DDR

LEDs,

KBD,

LVDS

Customizable

Logic Gates

Memory

Cards

Decreasing Cost of Ownership to Customers

12

STMicroelectronics Expands its SPEAr(R) Microprocessor Family for High-Performance Applications
New advanced symmetrical multiprocessor architecture from ST delivers cost efficiency, computing, and customizability for multiple embedded applications
Geneva, May 27, 2010 - STMicroelectronics (NYSE: STM), a world leader in system-on-chip technology today revealed the new architecture that will be the backbone for the new members of its popular SPEAr(R) (Structured Processor Enhanced Architecture) family of embedded microprocessors, targeting high-performance connectivity and embedded applications.

Leveraging its experience of the production-proven SPEAr300 and SPEAr600 lines, the new SPEAr1300 product line couples powerful dual ARM Cortex-A9 processors with a DDR3 memory interface and is manufactured in ST's low-power 55nm HCMOS (high-speed CMOS) process technology. The dual ARM Cortex-A9 processors support fully symmetrical operation, at speeds up to 600MHz/core for 3000 DMIPS equivalent.

Expansion of SPEAr Family

The SPEAr1300 makes use of ST's innovative Network-on-Chip technology for internal peripheral interconnect, assuring support for multiple different traffic profiles, while maximizing data throughput in the most cost-effective and power-efficient way. Initial sampling has already started to early adopters.

The new architecture offers industry-leading performance in terms of DMIPS/MHz and power consumption/DMIPS ratios, in addition to cost efficiency and customizability advantages. The availability of integrated DDR3 memory controller and a full set of connectivity peripherals like PCIe, SATA, USB and Ethernet, among other features, make the SPEAr1300 the ideal choice for high-performance applications including networking, thin client, videoconferencing, NAS (Network-Attached Storage), computer peripherals, and factory automation.

"This new architecture for the SPEAr family builds upon the unrivalled low power and multiprocessor capabilities of the ARM Cortex-A9 processor core" said Loris Valenti, General Manager of ST's Computer Systems SoC Division. "Upcoming SPEAr embedded microprocessors will deliver an unprecedented combination of processing performance, memory throughput, flexibility and low power for next-generation connectivity appliances."

Key features of the new SPEAr1300 architecture include:

- o Dual ARM Cortex-A9 cores, running at 600MHz for 3000 DMIPS equivalent
- o 64-bit AXI (AMBA3) bus Network-on-Chip technology
- o DRAM and L2 cache with Error Correction Code (ECC)
- o 533MHz 32-bit DDR3 memory controllers with ECC; 16-bit DDR2 also supported
- o Accelerator coherence port
- o Gigabit Ethernet
- o PCIe 2.0 supporting 5 GT/s (Gigatransfers/second)
- o SATA II 3 Gbit/s
- o USB 2.0
- o 256-bit key hardware encryption/decryption
- o 1.3 million gates of configurable logic

Embedded microprocessors from the new SPEAr1300 product line will be announced over the next few months, expanding ST's SPEAr family and providing an extensive choice for leading customers.

Further information on ST's SPEAr family of embedded microprocessor System-on-Chip ICs is available at www.st.com/spear

SPEAr Roadmap
2A9-1300
1300k gates
Dual Cortex-A9
600(1)MHz
HD Display, 3x PCIe
55 HCMOS LP
SPEAr1300
General Purpose
External AMBA bus
Flexible ASIC
Off the shelf eMPU
SPEAr300
VoiP, Security
SPEAr600 55nm General Purpose
External AMBA bus
2H9-600
600k gates
Dual ARM926
333(1)MHz
XGA display controller
90nm HCMOS GP
SPEAr 1300
First eMPU with
SPEAr1310
Communication
SPEAr320
Automation
SPEAr310
Communication
H9-300
300k gates
ARM926
333(1)MHz
65nm HCMOS LP
Dual Cortex A9
available in silicon
14

Addressing Multiple Applications

Bar Code

Automation

Thin Client

Networking

Instrumentation

VoIP

Imaging

Access Point

e-book

Docking Station

15

Key Takeaways

- o CCI product group is delivering solid results
- o Revenues in excess of \$1B
- o Operating margin in the low double-digit range
- o CCI product strategy centered on traditional ASIC, flexible ASIC and eMPU
- o Strategy to grow in Analog
- o Continue to be a market leader in motor controllers for HDD and printers, and in printheads for inkjet printers
- o Now accelerating BiCmos ASICs for both active optical cables and RF interfaces
- o Strategy to grow in Digital
- o Significant design wins in the areas of communication infrastructure and printers
- o Launch of the first 32nm bulk platform for networking applications
- o Expansion of the SPEAr family with the launch of the 1300 series
- o Tactical participation in HDD SOC

16

Home Entertainment & Displays
High on Entertainment - Low on Power
Philippe Lambinet
General Manager, Home Entertainment & Displays Group (HED)

HED Driving Multimedia Convergence
Set-top boxes
TVs / Monitors Audio
Sensors
2

Consumer Electronic Trends

- o Analog switch-off
- o Increasing demand for Pay TV and FTA satellite
- o New connected services
- o Content aggregation - broadcast & IP
- o Services across all consumer devices
- o Exciting entertainment experience
- o 3D stereoscopic TV
- o GUI technologies -- 3D graphics, MEMS...
- o LED BLU
- o Environmental factors
- o Power consumption
- o Green production

3

STB Market

- o New value-added services in EU and USA
- o Broadband & broadcast
- o Monetized with advanced security

Mu

Terrestrial

50

100

150

- o Combined with home networking
- o China market is the largest market with growth in cable & IP

o Brasil India Satellite

IP

0

2009 2010 2011 2012 2013 2014

Brasil, India, deploying on SD

H.264 essentially starting to commoditize

- o MPEG2 commoditization
-

DTV Market

- o Larger share of screen size for 40" and above

Mu

50

100

150

200

- o More internet services & content targeting connected TV

- o Faster migration rate to digital reception

- o Fast technology pace

LCD

Plasma

0

2009 2010 2011 2012 2013 2014

gy p

- o 120Hz to 240Hz

- o LED BLU

- o 3DTV

Source: iSuppli

DTV Market

Our Application-Platform Evolution

Gen. 1 Gen. 2 Gen. 3 Gen. 4

Fully open
connected

New services

New UI

Best

Performance/

HD H.264

market

platform

internet TV

enabler cost ratio Client/server

STi7100

STi7103/FLI106xx

STi7105

STi7104/FLI326xxH

STi7108

FLI7510

7109, 5202 7111, 7141, 7200

5211, 5206, ...

71xx, 52xx

STi7xxx

FLi7xxx

MPEG2 1000 DMIPS CPU Dual CPU & L2 cache Multi-core SMP CPU

Mass production Mass production In design

Production: 2007 a(3) Production: 2009 a(3) Production: 2010 a(3) Production: 2011 a(3)

Samples now

>5000DMIPS

Introduction of:

Dual 1080p60 decode

HD encode

Display Port, MOCA 2

>2000 DMIPS

Introduction of:

1080p60 decode

3D GL-ES2.0

MOCA 1.x

Introduction of:

AVS HD

DDR2

e-SATA

6

HED H1 2010 Highlights

- o G2 based STB massively deploying
- o Mass production started in June 2009
- o 55nm process with >10 products families
- o > 50 customers now in production
- o > 50% of ST total STB shipments from 2010
- o G3 getting ready for ramp up in 2010
- o G3 introduced at CES 2010 in January 2010
- o Freeman/FLI7150 solution for DTV designed in at multiple partners
- o >20 partners enabled with STi7108 platform
- o Develop new category of STB & media center
- o Develop new software for new services
- o RIA, GUI, gaming, mediaserver, ...

7

ST Vision
o Merging broadcast and internet TV
Client/server
Open internet
o Graphics
o Video/audio quality
o New
Services User
Experience
Green
o Low-power
o Sustainable excellence
Gaming
o Remote control
8

Why Reduce Power in CE ICs?

- o Governmental regulations compliance
- o End customer demand: a consumer selection criteria
- o Optimized product cost
- o Bill of material
- o Product reliability
- o ST vision: ST's environmental engagement to sustainable excellence

9

Principles for Sustainable Excellence

Energy

Electricity consumption per unit of
production - normalized values

100 KWh/production unit

Target

Water

Water consumption per unit of
production - normalized values

100 m3/production unit

Target

CO(2) emissions

Absolute values Reduction of waste

3500 Total

T t E

0

50

1994

1995

1996

1997

1998

1999

2000

2001

2002

2003

2004

2005

2006

2007

2008

0

50

1994

1995

1996

1997

1998

1999

2000

2001

2002

2003

2004

2005

2006

2007

2008

-500

500

1500

2500 1994

1995

1996

1997

1998

1999

2000

2001

2002

2003

2004

2005

2006

2007

2008

Tot. Energy

PFC

Sequestration

Transportation

Landfill: from 71% in 1994 to 4% in 2008

10

Processing Performance Evolution

5000

6000

MIPS

x14

1000

2000

3000

4000

0

G1 G2 G3 G4

> 240% performance increase over 3 product generations

11

STB Security Requirement Evolution

2010

Broadcast TV services Broadcast & broadband multimedia services

o New value-added services require increasing security resilience

Broadcast

VOD

Broadcast

TV

Gaming

(GOD)

eBanking

eGovernment

eHealth

Application

Store

Broadband

TV, VOD

....

o Rapidly increasing service choices accessible by users requires increased security flexibility without compromise on robustness

ST's Strength in CA & Security

- o Long-time partnerships with leading security vendors and more
 - o Mastering security from end-to-end
 - o Security technology developed internally allows for faster adaptation as security evolves
 - o Full support for smartcard and internal CA
 - o Late security customization in manufacturing flow
 - o Delivery flexibility and reduced inventory
- 13
-

Audio & Image Quality Enhancement

- o Leveraging years of excellence
- o Internet-driven content requires extensive video processing to meet customer's quality expectations
- o Sound terminal for high quality low cost speakers

14

ST is Ready for 3DTV

- o Deployable now!
 - o Side-by-side support (SbS)
 - o Top-and-bottom support (TaB) L
 - R
 - o 1/2 resolution 1080p
 - o Available on all G1 & G2 platforms
 - o Ready for the future
 - o Frame sequential support added
 - o Full HD resolution
 - L R
 - R
 - o Frame rates increasing
 - o 60fps on G3 platforms
 - o 120fps on G4 platforms
-

3D Graphics on G3 and G4

3D

polygons High definition

Video

texturing

Procedural

texturing

resolution

Fast redraw

- o Standards-based: OpenGL-ES 2.0 and OpenVG 1.1

- o Optimized for new class of user interfaces

- o Paves the way for gaming services

16

Summary

- o ST has an established position in the home entertainment market
- o OEM, Ecosystem familiar with ST
- o Proven solutions
- o ST provides complete solutions for a wide range of consumer services:
- o STB, DTV and other CE devices
- o Unmatched user experience, services and energy-efficiency
- o ST deploys new technologies for home entertainment to grow revenue
- o 3D video, 3D graphics, image quality, ...
- o Compelling internet convergence
- o Casual and full gaming ...
- o ST helps build greener products

17

Microcontrollers, Memories,
Secure Solutions
Claude Dardanne
General Manager, Microcontrollers, Memories & Secure Solutions Group (MMS)

MMS at a Glance

- o EEPROM memories

- o #1 Worldwide supplier

MMS 2009 Business by Activities

- o 31% share Q409*

- o Microcontrollers

- o #8 Worldwide supplier

- o 5.8% share 2009*

- o # 3 Secure MCUs

2

- o # 8 GP MCUs

MCU TAM CAGR 2010-14*

+6.4%

a(3) Key opportunity for growth

Source: iSuppli & WSTS

MCUs Market Drivers

- o General Purpose MCUs
- o Industrial market
- o Energy management: metering...
- o Consumer: user interface

MCU Worldwide TAM*

US\$B

interface...

- o Healthcare: glucose meter...
- o Automotive: car body, safety...
- o Secure MCUs
- o Smartcards: SIM...
- o Pay TV
- o Brand protection

3

- o IT: Trusted platform...

- o Dedicated Automotive MCUs

(Focus from ST dedicated Automotive Products Group)

Source: WSTS

Dynamics a(3) General Purpose MCUs

- o \$8B business opportunity in 2011
- o Multi-segments market
- o Steady growth foreseen in the next 5 years
- o Well established and profitable business model
- o Migration to 32bit CPU based on advanced e-NVM technology
- o Customers
- o Tens of thousands of customers worldwide
- o Broad, multi-applications and fragmented business
- o Customer investment in software ensures higher business

4

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stability and strong commitment to a family of products

- o Complementary to ST's advanced analog portfolio
-

Dynamics a(3) Secure MCUs

- o \$2B business opportunity in 2011
 - o Smartcard applications driven (SIM, Banking, Government, ID, Transport)
 - o Global shift to digital electronics requires more and more embedded security functions
 - o Migration to Flash based e-NVM technology embedding advanced security features
 - o Customers
 - o In addition to key Smartcard suppliers, other customers are recognizing the value of embedded security functions
 - 5
 - o Strong commitment to a family of products due to software investment, better business stability
 - o Technology driver for microcontrollers products
-

MCUs Shared Platforms

Shared Platforms Key Features

- o State-of-the-art embedded NVM technologies
 - o e-Flash
 - o E-EEPROM
 - o High-performance CPU cores
 - o 8-bit
 - o 32-bit
 - 7
 - o System know-how
 - o General purpose
 - o Security
-

State-of-the-Art e-NVM Technology

2008-09 2010-11 2012-13

e-Flash 90nm 80nm 55nm

e-EEPROM 130nm 90nm

8

a(3) High speed

a(3) Ultra low power

a(3) Advanced Analog functions

High Performance CPU Platforms
Computing
Power
32-bit ARM Cortex
5 stages pipeline
under evaluation
32-bit
32-bit
Light
32-bit SC000
Secure-M0
32-bit SC300
Secure-M3
ST33
32-bit
Cortex-M3
STM32
High-End
Cortex - M4
32-bit
ARM Cortex
Family
9
2008-2009 2010-2011 2012-2013
8-bit
Proprietary
Secure
STM8

From Enablers to Markets
Memories
General Purpose
Applications
Microcontrollers
General Purpose
Applications
Security
Specific applications
IP Portfolio
RF
Embedded Software
RF
EEPROM Memory Array
Dedicated blocks Dedicated blocks
Touch RF
sensing
Dedicated blocks
General Purpose &
Advanced Analog
Embedded software
Cryptography &
Secure Peripherals
10
Enablers
Advanced CPU
(8 & 32-bit Platforms) Pure EEPROM Technology
e-NVM Technology (Standard and Low Power)

From Societal Needs to Solutions

Integrated Controllers

- o Ultra-low-power
- o A/D converter

Energy

efficiency

System & product know-how Needs Solutions

- o Smart metering
- o Appliance control
- o Sensors network
- o Home monitoring
- o Therapy control
- o Drug traceability
- o Pay TV, touch control
- o Brand protection
- o Connectivity

Secured solutions

- o Trusted processing
- o Tamper resistance
- o Cryptography

Aging &

Health care

Communication/

Entertainment

11

- o M2M, NFC & SIM
- o Fare collection
- o e-Passport
- o Real-time monitoring

MMS Growth Strategy

ST's Microcontrollers Key Strengths

- o General purpose MCU strengths
- o Leadership position on the 32-bit market based on STM32 (ARM Cortex) platform
- o Advanced e-NVM roadmap (ultra-low-power & RF focus)
- o Advanced Analog capabilities
- o Secure MCU strengths
- o Market acceptance of ST23 & ST33 platforms
- o Advanced e-NVM roadmap

13

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- o Advanced security features know-how
 - o 20% market share with limited participation to the SIM market
-

New MCU Platforms Deployment

> 5x

> 10x

> 3x

14

General Purpose MCUs Secure MCUs

MMS' Growth Strategy

- o General Purpose Microcontrollers
 - o Capitalize on solid market acceptance of the STM32 platform
 - o Broaden STM32 microcontrollers portfolio to ensure huge pervasion and improve market coverage
 - o 16-bit market coverage with ARM M0 32-bit light Cortex
 - o High end 32-bit market coverage with ARM M4
 - o Increase x5...x10 the number of customers using STM32 platform
 - o Secure Microcontrollers
 - o Expand ST23 & ST33 secure platforms to new applications
 - o Trusted computing...
 - o Maintain leadership position in advanced security features
- 15
- o EEPROM
 - o Long-term commitment to stand alone EEPROM products
 - o >2B units shipped per year, up to 2Mb density
 - o Create a new market standard with dual mode EEPROM (RF + contact)
-

MMS Product Highlights

STM32 for Appliance (Motor) Control

ADC input

12-bit ADC

Main board or

dash board

Power

converter

- o Noise reduction

- o Key features in STM32

- o High-performance CPU

- o Embedded Flash memory

- o ADC, MC timer

PWM output

3-ph motor control

16-bit timer

Dual 12-bit DAC

H/W CRC for Flash

integrity check

Timer input

capture

Inverter

Motor

T

17

- o Control software libraries

- o Cost effective

- o Key Technologies for evolution: Advanced DSP, design optimization

STM32L for Health Applications

Key features in STM32

- o High-performance CPU
- o Extended portfolio

Test Strip

Chemistry

- o Ultra-low-power STM32L

Analog

switches or
sensor

Power

FSMC / SPI management

SPI

ADC 12-bit

2x12-bit

DAC

2 x Opamps

STM32

256/512K

FLASH

SDIO/SPI NVM/E(2) PROM

USB Connectivity

RTC 32KHz

Glucose Meter

18

age e t

Display

OLED/TFT

2/3 x AAA batteries

Coin cell or

Supercap in backup

STM32W for Wireless Sensor Networks
Rehabilitation,
balance control
Healthcare/
assisted living
Security
Sh k ti th ft
Sport & Wellness
Sport monitoring
"In-network" distributed computation
Consumer control
Games & remote
Infrastructural
monitoring
Buildings, bridges
Shock sensor, anti-theft,
anti-intrusion
monitoring,
pedometer,
fall detection
Reduced data transmission
Increased network lifetime
19
Industrial
Vibration & tilt
remote
measurement
Energy
management
Smart metering

STM32 for Smart Electricity Metering

L

Battery Display

N Backup

Power Line

MODEM

ANALOG to

DIGITAL

Voltage

& current

sensors

STM32

Up to 120MHz / 1MB Flash

Single or Multi

Phases

RF Security

Serial

- o Energy efficiency

- o Global trend to SmartGrid

- o Smart meter as central element

- o Key features in STM32

- o High performance CPU

- o 20

- o Key Technologies for evolution: Power line, RF connectivity, ADC, Tamper resistance

Future integration steps

ZigBee &

Sub GHz

Module NVM

(load profiles)

Low power & Real Time Clock

- o Embedded Flash memory

- o Extended portfolio

T33F1M for High-end Secure SIM Card

- o Pay with your SIM
- o Visa & Mastercard payment applications
- o Banking security level
- o Travel with your SIM
- o Mifare, Felica, Calypso applications
- o "Over The Air" reloading & management

21

- o Multimedia on your SIM
 - o Integrated webserver
 - o Enriched content & applications on the SIM
-

ST21NFCA & ST33F1M for NFC solutions
o Bring contactless capability to a handset
Reader Payment
ST21NFCA
Transport BT pairing
ST33F1M
22

ST33ZP24 SoC for Trusted Platform

- o Leading-edge secure 32-bit CPU
- o State-of-the art 90nm e-EEPROM technology
- o Embedding in-house TPM Firmware
- o Supporting multiple hardware interfaces
- o LPC for PC platforms
- o SPI, I2C for embedded platforms

S Trusted Platform

PC

Mobile Smartphone

23

Main

Processor

TPM

Server

Copier

Router

ST23YR for Contactless Solutions

- o ST23YR designed for advanced security and highspeed contactless solutions

- o ST23YR80:

biometric passport transaction (3 seconds

- o ST23YR18:

EMV Paypass DDA transaction (300ms

24

- o ST23ZR08:

secure transport solution

AuKey Solution for Brand Protection

- o Turnkey solution based on highly secure operating system running on ST23 platform
- o AuKey to authenticate securely:
- o Printer cartridges
- o Game peripherals
- o Docking station
- o Network accessories

25

Dual Interface Serial EEPROM

- o Application parameters are accessible from the inside (I(2)C) & the outside (RF) of electronic equipment

P i (ISO15693) RF i t f

M24LR64

- o Passive interface

I(2)C interface EEPROM RF interface o 32-bit password protection

Parameters such as settings, traceability, maintenance logs, firmware... can be read and updated:

- o Anywhere in the supply chain

- o At no on-board power cost

26

p

- o During the entire product lifetime (manufacturing, shipping, maintenance ...)

- o Even when the device is turned off or in its shipping box

Allows extra flexibility for supply chain management

Conclusion

Microcontrollers Opportunities

- o General purpose microcontrollers market
- o Very large and well established market
- o Market migration to 32-bit well synchronized with STM32 platform introduction
- o Early success of the STM32 ramp-up
- o New business opportunities allow for increased market share
- o Secure microcontrollers
- o Electronics market moving to digital
- o Early success of ST23 & ST33 ramp-up

28

MEMS & Advanced Analog
Benedetto Vigna
General Manager, MEMS, Sensors and High-Performance Analog Division

MicroElectroMechanical Systems (MEMS)

- o MEMS take advantage of the electrical and mechanical properties of silicon
 - o Electronic circuits
 - o Mechanical structures
 - o Semiconductor manufacturing
 - o High volume
 - o Small size
 - o Low cost
- 2
-

Key Messages

- o Leadership in MEMS for consumer market
- o Extended customer base
- o Nimble product development
- o Timely investment in state-of-the-art manufacturing
- o In 2009, expanded accelerometer portfolio with
- o Gyroscopes, microphones, compasses
- o Smart sensors: iNEMO(TM)
-toward the "One-Stop MEMS Supplier" goal
- o Leverage leading MEMS position and strong competence to increase presence in advanced analog

3

MEMS Leadership

ST is # 1 in MEMS for consumer electronics and mobile handset market

2009 ST revenues = \$218M; Market TAM = \$1,170M*

ST leads accelerometer business in all market segments

Consumer electronics and mobile handsets*

2009 ST Market Share = 50%

All markets, including automotive and industrial*

2009 ST Market Share = 21%

4

* Source: iSuppli

Manufactured > 750M

accelerometers and gyroscopes

MEMS Motion Sensors

9.6% CAGR

US\$M US\$M

6%

CAGR

13%

CAGR

8%

CAGR

25%

CAGR

15.3% CAGR

Accelerometers Gyroscopes

Source - iSuppli

Consumer Markets Exceeding Automotive Markets in Units and Revenue

5

ST Drives MEMS Avalanche

o 2005:

We entered PCs

o 2006:

We entered Gaming

o 2007:

We entered Phones

6

2008:

We entered Pockets

ST Continues to Drive MEMS Avalanche

o 2009:

We entered Cameras

o 2010:

Source: iSuppli reverse analysis of Apple iPad

7

MEMS Enable New Applications
L t i B d S i
Point Of Interest
Optical Image Stabilization
Location Based Services
Enhanced User Interface
& On Line Gaming
8
Augmented Reality

MEMS for Optical Image Stabilization
x
Hand tremors cause blurred images
Translation Rotation z
z
Rotation x Rotation y
Gyroscope senses tremors and the
micro-actuator compensates
9
OIS OFF OIS ON

MEMS and GPS Enable Location-Based Services
How much is that shirt? POI POI Filtering
Augmented Reality*
No compass With compass Point Of Interest
Source: www.apple.com (Wikitude)
10

MEMS in Automotive Market
Navigators
Anti-theft systems
Crash recording
Post-crash door unlock system
Dangerous driving detection
11
.... and much more...

MEMS in Healthcare

- o Sensing
- o Body motion
- o Pressure

A i i l Insulin

Flexible Lens for

Eye Pressure

Monitoring

Electro

Cardiogram

- o Acoustic signals
- o Bio signals (ECG, BGCM)
- o Biosensors
- o Drug Delivery

Movement

Recognition

Nano Pump Temperature

Sensor

Pressure

Sensor

12

- o Pumps
- o Valves
- o Nozzles

Step Counter

2009: Not Only Accelerometers.....
13

Cristallo:

Ultra-Low-Power and High Performance Accelerometer

Higher flexibility at lower current

Advanced power management

- o Wide supply voltage down to 1.8V

- o Ultra low current

High versatility

- o Extended FS range

(2/4/8/16g)

- o Multiple configurable interrupt sources

Embedded features

- o Programmable FIFO (32 levels)

- o 3 auxiliary ADC channels

14

100X Lower Power

Gyroscopes: We Are On Time

Analog Output

In 2009, we announced more than

30 Multi-axis Gyroscopes

2008

1X

2009

2X

Analog Output

15

E Jan 2010

3X

Analog and

Digital Output Gyroscopes market for mobile

and consumer TAM 2010:

\$246M CAGR 2010-2013: ~20%

Source: iSuppli

Application Segments:

- o Enhanced motion user interface
 - o Image stabilization
 - o Gaming
 - o Navigation
-

Pressure Sensors as Altimeters
Absolute, temperature-compensated, ultra-compact
pressure sensor with digital output
... make it small; make it
accessible

16

Pressure sensors market for mobile
and consumer TAM 2010: \$47M

CAGR 2010-2013: ~27%

Source: iSuppli

Application Segments:

- o Blood pressure sensors
- o Navigation system
- o Water level m

Microphones Enhance User Experience

Your mobile phone becomes your conference-call solution

A l i t i S t

oExcellent sound quality

oSuperior reliability and robustness

17

Source: iSuppli

Microphone market for mobile and

consumer TAM 2010: \$176M

CAGR 2010-2013: ~24%

Application Segments:

o Mobile phone

o Digital camera/camcorder

o Laptop PC

o Gaming

Compass Shows Heading
Accelerometer
A look from the Inside... ..and from the Outside
Geo-Magnetic Sensor
+
Application Segments:
o Navigation
o Mobile phone
o Pictures geo-tagging
o Location based services
18

iNEMOTM : The Smart Sensor
Smart sensor: combination of sensors, data processing
and information transmission
19

What's Next in iNEMOTM family?
3x accelerometer (LIS3DH)
3 di it l
6 axis integrated modules
20
3x accelerometer (LIS331DLH)
2x P&R or P&Y gyroscope (analog)
7.5x4.4 mm2

MEMS are Advanced Analog Products

- o MEMS means Micro Electro Mechanical Systems ... taking advantage of the mechanical AND electrical properties of silicon

- o Three key elements:

- o Micron-sized Transducer realized through a specific process called Micro-Machining (THELMA)

- o An Advanced Analog Chip with embedded smart functionalities

- o Dedicated package and calibration features

THELMA @ 1 um ASIC @ 130 nm 3 Axis Gyroscope

+ =

21

MEMS are Advanced Analog Products

Supply Monitor Power Management

Audio Amplifier

A typical Analog Signal Chain

Amplifier

Analog to

Digital

Converter

Control

Unit

Digital to

Analog

Converter

Amplifier

RF

Interfaces

Logic

Interfaces

Sensor Actuator

Gyroscope

22

All available in Stand Alone, ASSP and ASIC products

Analog: an IMS Competitive Advantage
Key product family Key Target Applications
High End Analog Front
End
Healthcare, Industrial, Portable
Devices
Mixed Signal ICs Mobiles Peripherals Portable Medical
Analog Ranking 2009
Analog ICs* # 2
o Can integrate Analog and Power (chip or package) in Power Conversion and
Power Management applications
o System know-how to design dedicated ICs for complex applications
Competitive Advantages:
Mixed Mobiles, Peripherals, Low Voltage
Operational Amplifiers
Mobiles, PDAs, e-Books
*Ranking refers to total ST Analog ICs sales
23
Y g p pp
o Variety of reference designs for medium and small customers
o Delivery of System Solutions including Sensors, Analog ICs, Microcontrollers
and Power Discrete
o The World's largest and most cost-effective 6" Front End in Singapore
Source: iSuppli, ST

Sensors Complement ElectroCardioGraph

HM222R

2 Ch 1

Remote monitoring
and telemetry

Channel +

Microcontroller +

Accelerometer + BTLE

HM221R

2 Channel +

Microcontroller+

accelerometer

HM301D

HMX11D

HMX11D+Isolation

HM101D

1 Channel

Diagnostic

ECG/EEG and AED

+ Bedside monitoring

24

HM201D

2 Channel

Smart Sensors:
New High-Growth Opportunities
Factory Logistics
Building
Healthcare
Sport & Wellness
g
Automation
25

Sustaining Growth
26

Takeaway Messages

- o 2010 will be "Year of the Gyroscope"
- o ST will continue to drive MEMS avalanche and extend presence in new markets
- o ST investing heavily in MEMS and Advanced Analog products to sustain growth
- o ST well positioned to become undisputed leader in Smart Sensors, bridging analog world to digital brain
- o Sensors will enhance presence in the advanced analog world

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Power & Smart Power Solutions
Matteo Lo Presti
General Manager, IMS System Lab & Technical Marketing

Key Topics

- o Power management in IMS today
 - o Vision and awareness
 - o Innovation in technologies and products
 - o System innovation
-

Power Discrete: Strong Market Position

Power Discrete Ranking 2009

Power MOSFET (High Voltage) # 1

Protection & IPAD # 1

Thyristors # 1

Key product family Key target applications

HV Power MOSFETs Power supply, lighting, solar

Rectifiers Power management

ACS switches Home appliances

o The widest range of power technologies and packages from low to very high voltage (MOSFET, IGBT, Bipolar, IPAD, Rectifiers) offering the highest efficiency in

Competitive Advantages:

Rectifiers & power diodes # 3

switches Protections & IPAD Mobiles, USB/HDMI

interfaces, wired data transfer

the most demanding applications

o Expertise in composite materials (SiC, GaN) for high frequency and very high

temperature applications (Electric Cars, Photovoltaic Converters, Wind Generators)

o Extremely competitive manufacturing machine (Singapore, Long Gang, Shenzhen)

3

Source: iSuppli, ST

Power Management ICs: Pillar of IMS

Key product family Key Target Applications

Off-line converter ICs Power supply, lighting

Mixed Signal ICs Mobiles, peripherals, portable

di l

Power Management*

Ranking 2009

Power Management # 2

o Innovative System Solution combining Smart Power ICs, Power Discretes and Microcontrollers on a single board or in a single package

Mi d t h l i (di it l i l d l d hi h lt) t d l

Competitive Advantages:

medical

Battery Management ICs Mobiles, PDAs, e-books

LED Driver ICs Street lighting, building, panel

arrays

4

o Mixed technologies digital, signal and power, low and high voltage) to develop advanced Smart Power ICs

o System know-how enabling the design of dedicated Smart Power ICs for complex applications

Source: iSuppli, ST

(*) Power Management includes: Voltage Regulator/Reference, Industrial & Other Analog ASSP, Power Transistor, Bipolar PT, FET PT, IGBT, Thyristor, Rectifier & Power Diodes

Power Management Today
Key Areas of Strength
o High voltage power MOSFETs
o Ballast driver ICs
o Ultrafast diodes
o Application specific ICs
Consolidated
IMS Key Areas
SMPS
Lighting
(highfrequency
ballast)
Motor
Control
o Analog drivers
o High voltage power MOSFETs
o Rectifiers
o VIPers
o Microcontrollers
o Driver ICs
o Power transistors
o ACS switches
5
Mobile
(including
battery
charger)
Motherboard
&
Set-Top-Box
o IPADs
o OLED controllers
o VIPers
o Multi-output DC-DC converters
o Voltage regulators

Post Kyoto
protocols on
reducing
greenhouse
gas emissions
Vision and Awareness
Energy
demand is
increasing
drastically
Population
and
building
density
increase g
Moving forward in Eco Sustainability...
o Reducing power consumption through system efficiency
o Reducing oil combustion and pollution through renewable
energies and hybrid electric vehicles
f btt d b d lif
A Global Commitment
6
.... for a better day-by-day life
o Building automation, surveillance & safety
through sensor networks and remote monitoring
o Intelligent use of energy through smart systems
o Home healthcare through portable devices

Leveraging Smart Power ICs & Power Discretes
Higher efficiency
through smart
power ICs
Power management ICs, off-line converter ICs, integrated
PoE ICs, mixed digital/signal/power ICs
Power
Transistor 1995
PowerMESH SuperMESH MDmesh(TM) II
-20%
today
-82% -90%
2000 2005
MDmesh(TM) V Cutting power
losses through
power discrete
technology
Power transistors and rectifiers
Source: iSuppli
8

Innovation in Technologies &
Products

Innovation in Technologies &
Products

Innovation in Power Technologies

Ultra-low power 3D heterogeneous Advanced BCD, BCD-SOI
integration/ TSV

New materials:

SiC & GaN
technologies

Harvesting and thin

Innovative wire bonding

10

Advanced packaging &
system-in-package

Innovation in Power Technologies
60um wafers for advanced IGBT devices
Ultra-Thin Wafers
become flexible
90V G N RF P
11
GaN Power
Transistors
Wafers for GaN devices become
transparent

Innovation in Power Technologies
New smart power
systems
integrating
Microcontroller
+ Software
g g
ST current and
future technologies
Power Section (MDmesh V)
12
Application Specific
Integrated Modules
Controller (BCD8)

A Wave of New Products
IPAD(TM) (Integrated Passive
& Active Devices) solution

Ultra-small and energy-saving
Monolithic active matrix
OLED display power supply
New HV power MOSFET family

intelligent power switch
13

Advanced battery chargers
and gas gauge monitoring

featuring worldwide best RDSon

System Innovation

SmartGrid

The Heart of Energy Management

Home automation
and distributed power
generation

Renewable energy

Factory automation

15

SmartGrid: Power conversion and connectivity for an intelligent use of energy

Building

Power plant automation

Power Conversion in SmartGrid

ST offers complete solutions from low-power applications to high-power energy conversion

Medium-Power

High-Power

With

- o SiC / GaN transistors
- o HV switches
- o VIPer plus
- o DC-DC modules

Low-Power

- o Low-power technologies
- o Battery power management
- o Energy harvesting
- o Power switches
- o Power transistors
- o Power management ICs
- o Mixed signal ICs

16

Source: Semicast (including Power Energy and Transportation)

Energy 2013 TAM: \$5B

CAGR 2010-2013: 7%

Smart Power Solutions

LED Street Lighting Control

Energy saving:

dimming based on available natural light

Comfort:

color changing (cool/warm) based on location
and time of day

Driver ICs

Key Products

Architectural/fashion:

creating different effects using the same lights

Lighting control:

for specific applications like theater, stage lighting

17

Source: Semicast

Power transistors

Power factor ICs Lighting 2010 TAM: \$1B

CAGR 2010-2015: 9%

Smart Power Solutions

Smart Meters

Gas Meter

Electronic flow meter

Energy Meter

Motor control ICs

Key Products

Concentrator

provides info to the consumer on
energy and gas usages

18

Source: ABI Research

Power line modems

Energy meter ICs

Smart Electricity Meters

TAM 2009: 76M units

CAGR 2010-2013: ~18%

Smart Power Solutions
Hybrid and Electric Vehicles
Plug-in battery charger for HEV
Combine an electric motor and an internal combustion engine
Reduce air pollution from greenhouse gases
Operating cost equivalence: 20 (cent)US / liter**
Power transistors
Key Products
19
More than \$600 of
semiconductors
for every HEV (*)
Source: (*) Strategic Analytics, (**) US Dept of Energy
Driver ICs
32-bit microcontrollers

Smart Power Solutions

Photovoltaic

ST Solution:

One microinverter

module per panel

vae Maximizing energy output (MPPT)

vae Energy monitoring (daily, monthly, yearly, etc.)

vae Diagnostic, anti-theft and anti-tearing protection

vae Reducing operation costs due to modularity

Remote

Monitoring &

PV Panel Control

Cool bypass switch

Key Products

20

Power transistors

MPPT

(Max Power Point Tracker)

Electronics on panel value from \$1.50 to \$15

PV energy production growth

O((2010 a(3) about 7 GW

(about 35 million single photovoltaic panels)

O((2020 a(3) about 56 GW

Source: European Photovoltaic Industry Association, ST

Smart Power Solutions
Photovoltaic
Value
Smart Power System
MPPT
Max Power Point Tracker
DC/DC
Converter
DC/AC
Inverter MOSFET
SiC
MPPT
Max Power Point Tracker Cool Bypass Switch
Cool Bypass Switch
Cool Bypass Switch
Microinverte
21
Complexity
PLM
Power Line Modem
System Monitoring
(Energy Level, Faults, etc.)
DC/DC
Converter
DC/AC
Inverter
MPPT
Max Power Point Tracker
DC/DC
Converter Bypass Diode

Smart Power Solutions
Home Healthcare
Insulin
Flexible Lens for
Eye Pressure
Monitoring
Electro
Cardiogram
Portable distributed
diagnostics
and remote monitoring
Battery management
IC
Key Products Movement
Recognition
Nano Pump Temperature
Sensor
Pressure
Sensor
22
Portable Healthcare
2010 TAM: \$1B
CAGR 2010-2015: 11%
Source: Semicast
ICs
8-bit low-power
microcontrollers
IPAD and protection
Step Counter

Smart Power Solutions
Energy Harvesting
Integrating harvesting
in smart systems
Solar
Electro- Thermal
chemical Enabling wireless sensors
for energy autonomy
Autonomous wireless sensor node
Harvesting
Device (PV,
Piezo, etc) Low Power
RF
Transceiver
Sensors
Ultra Low
Power
Microcontroller
Energy
Conversion
Battery Storage
Wind
RF
Kinetic
Energy
23
The Future is
Here STMicroelectronics and Micropelt
demonstrate 'Perpetual Energy'
thermoharvesting power supply

A "Virtuous" Circle
Smart Power ICs Develop Solutions
System Approach
Acts as a
Flywheel
24
Product Innovation
Customer Endorsement

TRANSFORMING THE PORTFOLIO

May 2010 1 Date: 2010-05-07 COMPANY CONFIDENTIAL

Pascal Langlois

Senior Vice President, Chief Sales and Marketing Officer

TRANSFORMING THE PORTFOLIO

E & f h o High-value entry

- o Smartphones
- o Connected devices
- o Application engine
- o Modem
- o Connectivity
- o Diversified customer portfolio
- o Open/complete platforms
- o Entry feature phones
- o Modem only
- o Three big customers
- o Custom solutions

2

p p p

- o Europe and Asia o Global

MARKET TRANSFORMATION

Thin

Modems Platforms

In Production

HSPA

EDGE

TD

M340

HSDPA

5209

EDGE

M6718

TD HSPA

DRIVING MOBILE BROADBAND

EVERYWHERE

Mobile Broadband and M2M Devices

Entry

& Feature Internet and Multimedia enabled solutions

Separated Smartphone solutions

(Application engine + Thin modem)

TD-U67XX

WCDMA

U6715

HSDPA

THE BEST SMARTPHONE PLATFORMS

FOR ALL TIERS

High-end and mid range smart devices

Platforms Single-chip 2G & EDGE

U33x

HSPA/HSDPA

T72XX

TD-HSDPA

Connectivity and

Enhancements

STLC4560 Complete Platforms

WLAN

GNS7560

GPS

STw5200

Audio

STw8019

TVout

STLC2690

BT/FM

65XX

EDGE

ADDING VALUE

TO AFFORDABLE DEVICES

High value entry devices

3

TODAY 2G/EDGE
UMTS/
HSPA
TD-]SCDMA
Thin
Modems
Platforms HSPA
EDGE
TD
M340
HSDPA
5209
M6718
TD In Production
Entry
& Feature Internet and Multimedia
bl d l i
Separated Smartphone
solutions (Application engine
+ Thin modem)
EDGE
TD-HSPA
U67XX
WCDMA
U6715
HSDPA
Platforms enabled solutions
Single-chip 2G & EDGE
U33x
HSPA/HSDPA
T72XX
TD-HSDPA
Connectivity and
Enhancements
STLC4560 Complete Platforms

TOMORROW
Thin
Modems
Platforms
In Production Announced
LTE / HSPA+ Mobility
Best combined UL/DL
performance
Data in every region
M720
LTE/HSPA+
M340
HSDPA
5209
EDGE
M570
HSPA+
M700
LTE
M6718
TD-HSPA
UMTS/ 2G/EDGE
HSPA
LTE TD-]SCDMA
Entry
Platforms
Application
Processor with
Integrated
Modem
Platforms
Internet and Multimedia
enabled solutions
High-performance
Smartphone platforms
U8500
HSPA+
U68XX
HSDPA
U67XX
WCDMA
U6715
HSDPA
U5500
HSPA+
TD
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Connectivity and
Enhancements
CW1200 Complete Platforms
WLAN
CG2900
BGF
AV5230
Audio PTE
AV8100
HD TVout
Single-chip 2G & EDGE

U33x
HSPA/HSDPA
T72XX
TD-HSDPA
E4908
EDGE
G4850/52
GSM/GPRS
E4910
EDGE
T6718
TD-HSPA
June 3, 2010

A COMPLETE SINGLE CHIP 2G PORTFOLIO

Single Chip

ULC+ GSM/GPRS

MPEG4, MP3, FM record

Dual SIM / Dual Standby

Single-Chip EDGE

WQVGA display, touchscreen

3MP camera

MPEG4 H.263 MP3 AAC+

Single-Chip EDGE-Rx

QVGA display, 2MPix camera

MPEG4, H.263, MP3, AAC+

USB FS

Single Chip

ULC GSM/SMS

MP3 ringtones

Dual SIM / Dual Standby

MPEG4, H.263, MP3, G4852 E4910

Bringing high value features to the entry segment

G4850 E4908

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CONNECTIVITY AND ENHANCEMENTS

Bluetooth

Fully-integrated single-chip Bluetooth

GPS

Leading footprint and power

BT/FM/GPS

First 45nm Combo

L d i f t i t i

CG2900

WLAN

Outperforms in Bluetooth co-existence

FM Radio

Over 1 Billion FM radio shipped

Video

Full HD TV out

Audio

Extend playtime without reducing quality

Leading footprint size

802.11a/b/g/n

(50mm2 BOM

Integrated FEM, SMPS

CW1200

HDMI/CVBS combo

Full HD 1080p

7.1 audio surround

AV8100

AV5230

102 dB SNR

Integrated headset AMP

Power

Smart power distribution

Playback Time Extender

Integrated into complete platform solutions

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U6715 SMARTPHONE FOR ALL
HSDPA supporting multiple OS
Touch screen
U6715
5 Mpixel camera
QVGA or WQVGA Video
3G talk time up to 7 hours
standby up to 25 days
Android ready
Great user experience at an affordable price
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INNOVATION FOR SMARTPHONES

Dual core architecture with > 1Ghz

Over 5000 DMIPs power

Full HD Camcorder 1080p

20 megapixel cameras

High-end 3D graphics subsystem

Dual core architecture

HD video 720p

12 megapixel cameras

3D hi b t

o TD variants for the Chinese market

C ibili d l bili f

Integrated connectivity

HSPA+ modem

Supporting multiple OS

U8500

graphics subsystem

Integrated connectivity

HSPA+ modem

U5500

o Compatibility and scalability for our customers

o Reference hardware for ARM Mali ecosystem

o Driving evolution of SMP for Android

Technology leadership brought to mainstream

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Feature rich TD-HSPA/EDGE platform
Enabling affordable high-speed internet
phones
ADVANCED TD-SCDMA SOLUTIONS
Thin modem platform with
TD-HSPA for higher uplink data rates
65nm process
5 megapixel camera
WQVGA display
Improved overall integration
T6718 M6718
Leader in TD-SCDMA in China - 12 Million chipset shipped
10

MOBILE BROADBAND WITH HSPA+ AND LTE

Commercially available chipsets

HSPA+ technology

Optimized modem

solution suitable for USB data devices

best-in-class thermal performance

Full data speed downlink of 21Mbps and

uplink of 5.7Mbps simultaneously

Modem optimized for easy integration into a
variety of devices

M570

M720

First to successfully show interoperability between HSPA and LTE

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ADDRESSING MODEM EVOLUTION

Challenges

Increasing air
interfaces

Then Now

TD

LTE

HSPA+

New ST-Ericsson

ltd

- o Software-defined radio access

- o LTE 100Mbps, HSPA+ 42Mbps

- o Target >2X power

improvement

- o Scalable for cost

management

2G

2G/3G

EDGE multi-mode modem

architecture

Increasing

adoption of

connectivity

BT

FM

BT

GPS

WIFI

- o Co-existence built-in

- o Combos & platform

integration

Increasing

adoption of

connectivity

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- o Building on existing LTE

solution

- o Single SW and HW platform

- o Drastic reduction of testing

needs

Size & cost

June 3, 2010

SUMMARY

o oppoTrrtaunnsiftoiersming the portfolio to address key market
Complete portfolio with highly competitive products
Good feedback from customers on the new portfolio

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DEMOS
Thin
Modems
Platforms M570
Entry
Application
Processor with
Integrated
Modem Platforms
U8500 + Connectivity
(CG2900 & CW1200)
Y
Platforms
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SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, STMicroelectronics N.V. has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

STMicroelectronics N.V.

Date: June 4, 2010

By: /s/ Carlo Ferro

Name: Carlo Ferro

Title: Executive Vice President and
Chief Financial Officer