

# VALUE MIGRATION IN IC PRODUCT DEVELOPMENT ACTIVITIES—2006 TO 2015+

## TABLE OF CONTENTS

|       |   |    |
|-------|---|----|
| 1.    | ABSTRACT.....   | 1  |
| 2.    | INTRODUCTION .....  | 1  |
| 3.    | SEMICONDUCTOR INDUSTRY ECOSYSTEM.....                                     | 5  |
| 3.1   | Six Domains of the Semiconductor Value Chain.....                         | 6  |
| 3.1.1 | Resources.....  | 6  |
| 3.1.2 | Semiconductor Product Vendors.....  | 8  |
| 3.1.3 | Semiconductor Product Distribution.....                                   | 8  |
| 3.1.4 | End-Equipment Vendors.....  | 10 |
| 3.1.5 | End-Equipment Distribution.....   | 10 |
| 3.1.6 | End-Users.....  | 11 |
| 4.    | IC PRODUCT DEVELOPMENT VALUE MIGRATION.....                               | 11 |
| 4.1   | Value Migration in DP Product Development Value Chain.....                | 12 |
| 4.2   | Value Migration (Constancy) in SP Product Development<br>Value Chain..... | 12 |
| 4.3   | Summary of Key Findings.....  | 16 |

## LIST OF FIGURES

|    |  |    |
|----|--|----|
| 1. | Timeline Analysis of the Semiconductor Product Development<br>Value Chain..... | 3  |
| 2. | SP Technology Product—Precision 12-bit Analog Microcontroller.....             | 6  |
| 3. | Semiconductor Industry Ecosystem.....  | 8  |
| 4. | Value Migration in DP Product Development Value Chain.....                     | 13 |
| 5. | Value Migration (Constancy) in SP Product Development Value Chain.....         | 14 |
| 6. | Structural Differences of SP and DP Development Value Chains.....              | 16 |
| 7. | Different Nature and Uses of DP and SP Products/Systems.....                   | 17 |
| 8. | Signal Processing Value Chain: MEMS-based Intelligent Sensors.....             | 18 |

## IC Industry Profitability and Growth Executive Reports

1. *The Future of the Semiconductor Industry—2006 To 2015+*
2. *Value Migration in Semiconductor Product Development Activities—2006 To 2015+*
3. *Two Semiconductor Business Types—Role Of Standards In Mining and Farming Businesses*
4. *Profit-Growth Strategy Board—Technology-Business Decision Making Matrix*

- Prepare for strategy meetings
- Understand performance potential of your business
- Compare performance against competitors
- Learn innovative approaches and “rules-of-engagement” of your business

The four reports present findings that are critical at the corporate strategy level:

### Report #1:

- Semiconductor technologies used to develop products have evolved and will continue to evolve along two different technology tracks featuring distinctly different, typically opposite, attributes.
- Viewed on a macro scale, the evolution of semiconductor technology and industry has been continuous and predictable.

### Report #2:

- Relative economic values of product development activities have changed distinctly differently in the two technology tracks. In this report we analyze the migration of value-added activities in semiconductor product development—from product concept to the finished product.
- There has been an important movement of implementing signal processing functions in the purely digital domain, and this trend will continue. When the signal processing function is implemented in the digital domain only, it shares the benefits of the mainstream data processing technology.

### Report #3:

- There are two distinct business types in the semiconductor industry, for which we use the Farming and Mining metaphor. The two business types are different in all key business attributes.
- The primary driver of the two business types is the presence or absence of standards.

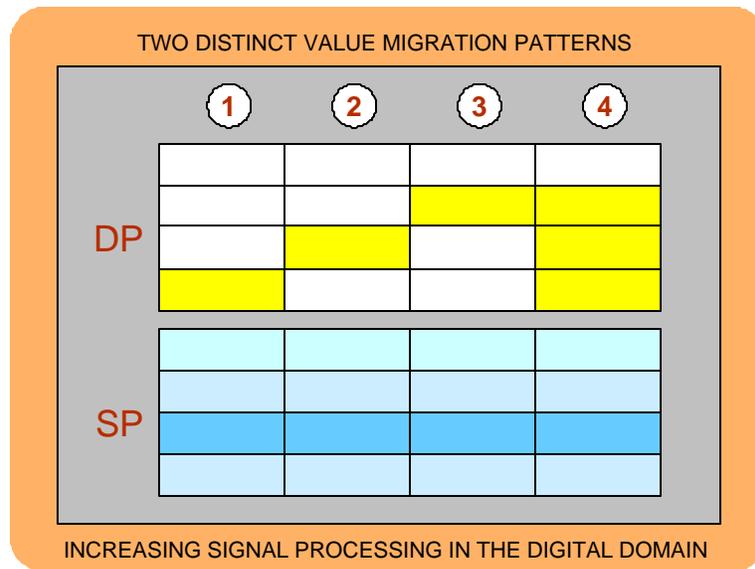
### Report #4:

- The two technology and two business tracks intersect and form a technology-business matrix in which products made along the two technology tracks are being sold along the two business value chains.
- Matrix field attributes emanate from the nature of the semiconductor industry itself. A successful business strategy has to be in accord with its board position attributes and its explicit “rules-of-engagement.”
- The Profit-Growth Strategy Board framework is a management tool for balancing business profit and growth objectives. Profit-Growth Board position attributes are relatively stable and highly predictable in the longer term.

The four reports together form a proven and invaluable framework for assessing and formulating semiconductor strategy. Teleconference support is included.

# IC Industry Profitability and Growth Series

## VALUE MIGRATION IN IC PRODUCT DEVELOPMENT *2006 To 2015+*



Prepared for

June 2006

PETROV GROUP

## ORDER FORM

Print, Fill out, and Fax to 650-858-1211

| Report Description   | Pages/Figures | Report Price   | Totals   |
|--|---------------|----------------|----------|
| Profit-Growth Strategy Board— <i>Technology-Business Decision Making Matrix (PDF only)</i>               | 45 / 19       | <b>\$1,450</b> | \$ _____ |
| Two Semiconductor Business Types— <i>Role Of Standards In Mining and Farming Value Chains (PDF only)</i> | 20 / 14       | <b>\$ 950</b>  | \$ _____ |
| Value Migration In IC Product Development Chains Activities— <i>2006 to 2015+ (PDF only)</i>             | 17 / 5        | <b>\$ 950</b>  | \$ _____ |
| The Future of the Semiconductor Industry— <i>2006 to 2015+ (PDF only)</i>                                | 22 / 8        | <b>\$ 950</b>  | \$ _____ |
| Transceiver Strategies for 3.5G Handsets— <i>Next Generation Handsets Series (PDF only)</i>              | 105 / 38      | <b>\$2,450</b> | \$ _____ |
| Linear Technology Corporation— <i>Why Linear is the Most Profitable IC Vendor</i>                        | 180 / 40      | <b>\$2,450</b> | \$ _____ |
| Automotive, Medical, and Automation Mixed-Signal Market and Technology                                   | 260 / 65      | <b>\$2,450</b> | \$ _____ |
| Chip Design Strategy— <i>Managing Design Tool Issues</i>   | 220 / 21      | <b>\$2,450</b> | \$ _____ |
| Chip Design Strategy— <i>IC Design Technology of IBM</i>   | 350 / 60      | <b>\$2,450</b> | \$ _____ |
| Total  |               |                | \$ _____ |

**Note:** A **group license** for internal use worldwide is **1.5 times** the price of the personal license

### Payment Method

AmEx [ ] Visa [ ] MC [ ] Card No. \_\_\_\_\_ Exp. Date \_\_\_\_\_

Card Holder Name \_\_\_\_\_ Address \_\_\_\_\_

Signature Authorizing Order: \_\_\_\_\_ Date \_\_\_\_\_

### Payment Terms

Our payment terms are 10 working days; a 5% discount for multiple report purchase. Contact us for information for wire transfer payment. [We support our work](#) with after-sale teleconferences and on-site strategy discussions.

### Shipping Information

Name \_\_\_\_\_ Title \_\_\_\_\_

Company \_\_\_\_\_ Division \_\_\_\_\_

FedEx Address \_\_\_\_\_

Phone: \_\_\_\_\_ Fax \_\_\_\_\_ E-mail: \_\_\_\_\_

PETROV GROUP

4173 El Camino Real, Suite #40  
Palo Alto, CA 94306

Fax: 650-858-1211  
E-mail: [inquiry@petrovgroup.com](mailto:inquiry@petrovgroup.com)  
Phone: 650-858-1311

## **Petrov Group Announces Its Report “The Future of the Semiconductor Industry—2006 To 2015+”**

PALO ALTO, Calif.—(BUSINESS WIRE)—May 1, 2006—The Petrov Group today announced its executive report titled “The Future of the Semiconductor Industry—2006 to 2015+.” This \$950 report is the result of an in-depth analysis of more than 50 semiconductor companies and of their business, product, and technology portfolios.

“This report is one of the cornerstones of our Profit-Growth Strategy Board (P-G Board) framework which we use for strategy assessment and formulation assistance to our clients. The P-G Board helps our clients to balance their profit and growth objectives by defining boundary conditions and inherent rules for business success. While we all know that there are fundamental differences among, for example, Intel, Samsung, Linear, and Marvell, what these companies have and do not have in common is far less understood,” said Boris Petrov, managing partner of the Petrov Group.

“In order to assess and formulate long-term semiconductor strategies one has to examine the likely evolution of the semiconductor industry and its impact on value-added activities in semiconductor product development—from product concept to the finished product. In the process we have uncovered and confirmed several fundamental rules and patterns that ultimately led to formulation of our P-G Board framework.”

This executive report is part of Petrov Group’s IC Industry Profitability and Growth Series of studies and reports.

The Petrov Group, LLC is a strategy and investment advisory firm focused on the high-tech industry since 1982. It is recognized for pragmatic due diligence; its methodology includes proprietary models; several of which are shown at [www.petrovgroup.com](http://www.petrovgroup.com)

CONTACT: Boris Petrov  
650-858-1311  
[inquiry@petrovgroup.com](mailto:inquiry@petrovgroup.com)

## **Petrov Group Announces Its Report “Value Migration in Semiconductor Product Development Activities— 2006 To 2015+”**

PALO ALTO, Calif.—(BUSINESS WIRE)—May 29, 2006—The Petrov Group today announced its Executive Report on changes in IC product development value chains in the 2006 to 2015+ period. This \$950 report is the result of an in-depth analysis of more than 50 semiconductor companies and is part of Petrov Group’s IC Industry Profitability and Growth Series of studies and reports.

“Relative values of product development activities are one of the cornerstones of our Profit-Growth Strategy Board (P-G Board) framework for semiconductor strategy formulation. Semiconductor technologies used to develop products evolve along two different technology tracks featuring distinctly different, typically opposite, attributes. The two technologies intersect with two distinct types of semiconductor businesses for which we use the Farming and Mining metaphor. Together they form a technology-business matrix; attributes of each matrix field emanate from the nature of semiconductor industry itself,” said Boris Petrov, managing partner of the Petrov Group.

“In order to formulate successful strategies one has to understand the requirements of the two distinct semiconductor business types and their effect on the potential positions on the Profit-Growth Strategy Board. In this Executive Report we analyze the migration of value-added activities in semiconductor product development—from product concept to the finished product. There has been an important movement of implementing signal processing functions in the purely digital domain, and this trend will continue. When the signal processing function is implemented in the digital domain only, it shares the benefits of the mainstream data processing technology (more accurate, sooner, faster, cheaper, smaller, etc.)”

The Petrov Group, LLC is a strategy and investment advisory firm focused on the high-tech industry since 1982. It is recognized for pragmatic due diligence; its methodology includes proprietary models; several of which are shown at [www.petrovgroup.com](http://www.petrovgroup.com)