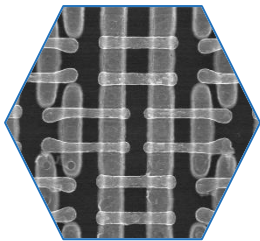
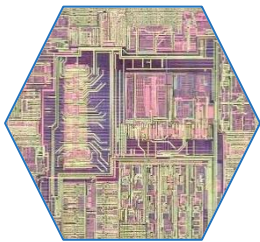


## Smartphones PMIC Comparison 2021

*Technology and cost comparison of 20 power management integrated circuits (PMIC) in recent smartphones.*



**Title:** Smartphones PMIC Comparison 2021

**Pages:** 290

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August 2021

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PDF & Excel file

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**Reference:**  
SPR21598

Power management integrated circuits (PMIC) represent more than half of the active power electronics semiconductor market. PMIC revenue was estimated at \$33 billion in 2020, with mega trends being the main driver. Consumer connected devices, adoption of 5G connection, and automation will increase the production of semiconductor devices, which in turn will increase battery-operated devices. This surge has resulted in accelerated growth of the global PMIC market, which is highly competitive yet well established and with a few new players and foundries entering.

Power management devices are necessary for controlling, converting, and distributing power in devices. Their high demand in consumer electronics is driven mainly by the smartphone market. New technologies encourage PMIC manufacturers to design chips that integrate different functions on a single chip. The power management integrated circuits analyzed here use CMOS, BiCMOS, and BCD technology, with a process node ranging from 45 nm to 0.5  $\mu\text{m}$ . Several PMIC integrate different memories on their die, such as the SRAM, ROM, and EEPROM memory, or a combination of different memories.

This report studies PMIC used in recent smartphones, which are the main contributors to the overall consumer PMIC

market. Specifically, this report focuses on PMIC used in high-end and luxury smartphones and includes more than 20 products from the following players: Apple, Dialog Semiconductor, STMicroelectronics, On Semiconductor-Fairchild, Samsung, Qualcomm, Maxim Integrated, HiSilicon, Intel, and Mediatek. This report also highlights the trends for PMIC in smartphones, the supply chain, and the cost advantages of each technology. A detailed analysis of each PMIC is offered as well, including package, high-resolution images of the die with cross-section, and technology identification. A cost analysis is furnished with estimates of each PMIC wafer and die cost, and a comparison of the different PMIC from various manufacturers is included, covering technology, wafer size, and wafer cost.

### COMPLETE TEARDOWN WITH

- Detailed photos
- Precise measurements
- Materials analysis
- Supply chain evaluation
- Manufacturing cost analysis
- Comparison by manufacturer
- PMIC comparison

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- ✓ Package views and marking
- ✓ View and dimensions
- ✓ Delayering and main blocs
- ✓ Die process
- ✓ Die cross-section

- ✓ PMIC front-end process and fab unit
- ✓ Cost analysis (FE cost, die cost)

- Dialog Semiconductor
- Fairchild Semiconductor
- HiSilicon
- Intel
- Qualcomm
- Samsung
- STMicroelectronics
- Mediatek

### Comparison

- Physical Comparison
- Technology Comparison
- PMIC vs. Smartphone Providers
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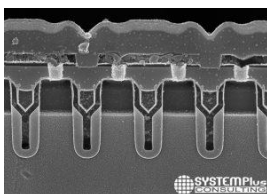


**Ying-Wu Liu** serves as a Technology & Cost Analyst at System Plus Consulting. Ying-Wu's core expertise is Integrated Circuits technologies. With solid expertise in physical and electrical analysis of devices and experiences in wafer manufacturing and technical supports with international clients, Ying's mission is to develop reverse engineering & costing reports.



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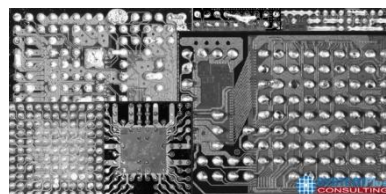
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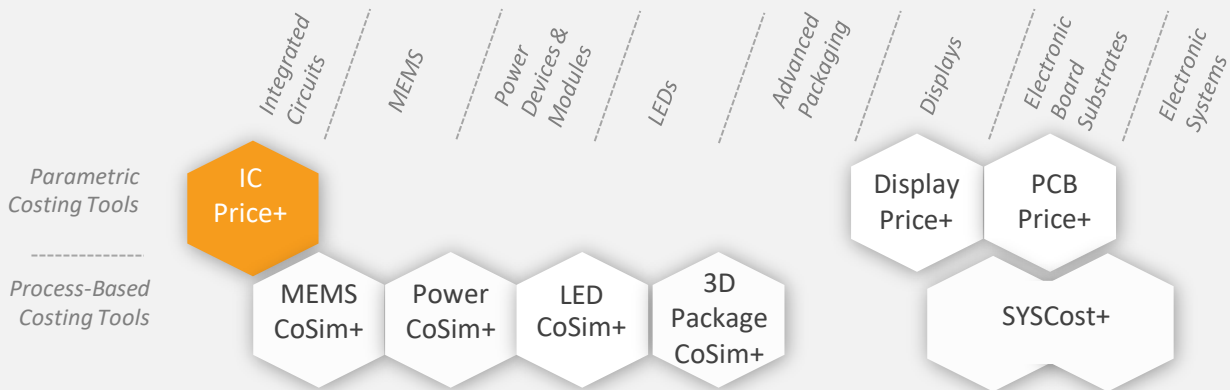


### Power Management IC: Technology, Industry and Trends 2019

*China, 300mm, societal impacts, and important strategic decisions are shuffling the cards in the power IC industry.*

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## COSTING TOOLS



Our analysis is performed with our costing tool IC Price+.

System Plus Consulting offers powerful costing tools to evaluate the production cost and selling price from single chip to complex structures.

### IC Price+

The tool performs the necessary cost simulation of any Integrated Circuit: ASICs, microcontrollers, DSP, memories, smartpower...

## ABOUT SYSTEM PLUS CONSULTING

### WHAT IS A REVERSE COSTING®?

Reverse Costing® is the process of disassembling a device (or a system) in order to identify its technology and calculate its manufacturing cost, using in-house models and tools.



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A complete range of services and costing tools to provide in-depth production cost studies and to estimate the objective selling price of a product is available.

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# TERMS AND CONDITIONS OF SALES

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## 1. INTRODUCTION

The present terms and conditions apply to the offers, sales and deliveries of services managed by System Plus Consulting except in the case of a particular written agreement.

Buyer must note that placing an order means an agreement without any restriction with these terms and conditions.

## 2. PRICES

Prices of the purchased services are those which are in force on the date the order is placed. Prices are in Euros and worked out without taxes. Consequently, the taxes and possible added costs agreed when the order is placed will be charged on these initial prices.

System Plus Consulting may change its prices whenever the company thinks it necessary. However, the company commits itself in invoicing at the prices in force on the date the order is placed.

## 3. REBATES and DISCOUNTS

The quoted prices already include the rebates and discounts that System Plus Consulting could have granted according to the number of orders placed by the Buyer, or other specific conditions. No discount is granted in case of early payment.

## 4. TERMS OF PAYMENT

System Plus Consulting delivered services are to be paid within 30 days end of month by bank transfer except in the case of a particular written agreement.

If the payment does not reach System Plus Consulting on the deadline, the Buyer has to pay System Plus Consulting a penalty for late payment the amount of which is three times the legal interest rate. The legal interest rate is the current one on the delivery date. This penalty is worked out on the unpaid invoice amount, starting from the invoice deadline. This penalty is sent without previous notice.

When payment terms are over 30 days end of month, the Buyer has to pay a deposit which amount is 10% of the total invoice amount when placing his order.

## 5. OWNERSHIP

System Plus Consulting remains sole owner of the delivered services until total payment of the invoice.

## 6. DELIVERIES

The delivery schedule on the purchase order is given for information only and cannot be strictly guaranteed. Consequently any reasonable delay in the delivery of services will not allow the buyer to claim for damages or to cancel the order.

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The transport costs and risks are fully born by the Buyer. Should the customer wish to ensure the goods against lost or damage on the base of their real value, he must imperatively point it out to System Plus Consulting when the shipment takes place. Without any specific requirement, insurance terms for the return of goods will be the carrier current ones (reimbursement based on good weight instead of the real value).

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System Plus Consulting responsibility will not be involved in non execution or late delivery of one of its duties described in the current terms and conditions if these are the result of a force majeure case. Therefore, the force majeure includes all external event unpredictable and irresistible as defined by the article 1148 of the French Code Civil?

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As a rule, all information handed by customers to system Plus Consulting are considered as strictly confidential. A non-disclosure agreement can be signed on demand.

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The Buyer is responsible for the use and interpretations he makes of the reports delivered by System Plus Consulting. Consequently, System Plus Consulting responsibility can in no case be called into question for any direct or indirect damage, financial or otherwise, that may result from the use of the results of our analysis or results obtained using one of our costing tools.

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Any dispute that may arise about the interpretation or execution of the current terms and conditions shall be resolved applying the French law.

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