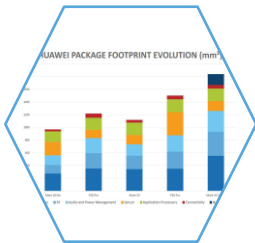
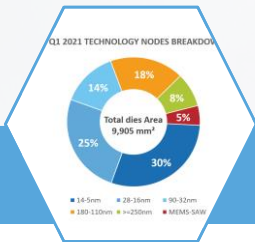


Smartphone Design Win Quarterly Monitor Q3 2021

A first ever smartphone technology monitor on the latest components, packaging and silicon chip choices of the smartphone makers.



This smartphone monitor utilizes data from representative phones (65+ phones per year torn down in the System Plus Consulting Phone Teardown Track Module) and follows the OEM market share, which means that the selected phones are a good representation of the market. Also provided is the detailed design wins and related supply chain for the eight phones being analyzed, along with supply chain alternatives for the main devices.

For each device and module, you get access to the technology choices of the manufacturers.

This monitor offers a clear view of the market-leading semiconductor companies and a direct comparison between OEMs. This includes:

- Design wins for the top smartphones' OEM (per Mfr., nationality, type of device...)
- Packaging evolution in terms of type, footprint, pitch...
- Die area evolution per function, technology node, wafer size...
- Focus per category (processor, camera, memory, sensor...)

During a full year you will receive an updated Technology Monitor on a quarterly basis.

Q3 2021 Monitor focused on detailed analysis and understanding of the technological and strategic choices in terms of the supply chain made by the mobile makers for the best mid-range phones.

Q3 2021 shows Qualcomm leading in design wins (20% of total design wins) and package footprint consumption (26%). Snapdragon processors and RF components explain this.

Regarding die area consumption, Samsung leads (45% of total die area) thanks to memories and image sensors.

BGA and LGA packages are the main packaging platform, with 40% of package footprint consumption.

U.S.-based companies account for 33% of IC design wins and 27% of total die area (Qualcomm, Qorvo, and Skyworks have the majority). Korea represents only 7% of the IC design wins number, it represents 56% in terms of the total die area. Memory player Samsung drives this result.

300mm (12-inch) wafer represents 75% of total die area used in Q3 2021, with leading-edge technology nodes (14nm and to 5nm) representing 37% of the total die area. According to Q3 2021 smartphone shipments, 300mm wafers account for 4,2M units shipped.

Title: Smartphone Design Win Quarterly Monitor – Q3 2021

Pages: 152

Date: September 2021

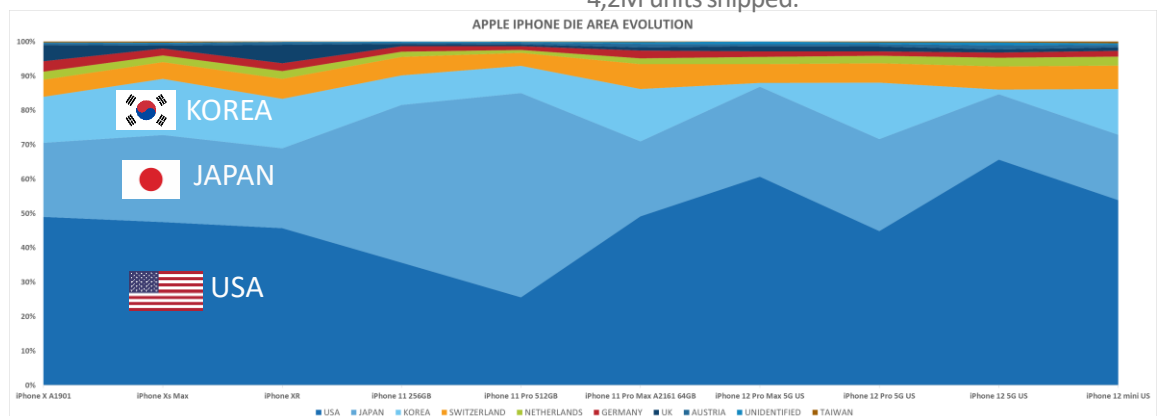
Format:

- PDF with graphs and analyses
- Web-based dynamic dashboard
- Direct access to the Analyst

Reference: SPM21003

Smartphones analysed:

- Meizu 17
- OPPO A74 5G
- HTC Desire 20 Pro Global
- BLU G90 Pro
- Samsung Galaxy S21 Ultra 5G
- Realme GT Neo 5G
- Motorola Moto E6
- ASUS ROG Phone 3 Strix Global



COMPLETE MONITOR WITH

- A web-based dynamic dashboard database with historical data from past years and the last quarter, including at least six new smartphones
- A PDF slide deck with graphs and comments/analyses to explain the main technology evolutions in the smartphone market
- Direct access to the System Plus analyst

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Khrystyna works in the Semiconductor Devices Department collecting and analyzing data on manufacturing processes, equipment and materials through surveys, interviews, and publication research to improve cost calculation of electronics devices manufacturing.

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RELATED PRODUCTS



Camera Module Comparison 2021 Vol. 3 – Samsung Galaxy S Evolution

Samsung Galaxy S camera design choices, technical and cost evolution from the S7 to the S21 Ultra.
July 2021



Phone Track Module Teardown Track

Unmached teardowns of phone systems with bill-of-material, block diagram and high-resolution photos. Access comprehensive and full parts list with easy-to-navigate links to all semiconductor components in each system.



Processor Quarterly Market Monitor

Market & Technology Monitor
While finding new application, and sustaining the established ones, CPUs, GPUs, and APUs hold the keys to the next ten years of the processor market.
September 2021

SMARTPHONE REFERENCES USED

Q3 2021 :



OPPO A74 5G



ASUS ROG
Phone 3 Strix



Motorola Moto
E6



Samsung
Galaxy S21 Ultra
5G



Realme GT Neo
5G



BLU G90 Pro



HTC Desire 20
Pro Global



MEIZU 17

The monitor takes into account 32 smartphones:

Q4 2020 :

- Apple iPhone SE (2020)
- Huawei P40 Pro 5G
- Motorola Edge+
- OnePlus 8 5G
- Realme X50 5G
- Samsung Galaxy M31
- Sharp AQUOS R5G
- ZTE Nubia Red Magic 5G

Q1 2021 :

- APPLE iPhone 12 5G
- APPLE iPhone 12 Pro Max
- GOOGLE Pixel 4a
- Huawei nova 7 SE 5G Youth
- MICROSOFT Surface Duo
- Samsung Galaxy Note 20
- SAMSUNG Galaxy Z Fold 2
- Vivo X50 Pro

Q2 2021 :

- ZTE Axon 20 5G
- Samsung Galaxy S21+
- Xiaomi Mi 10 Ultra
- BLU G90
- Apple iPhone 12 mini US
- LG Wing 5G
- Samsung Galaxy Note 20 Ultra
- Huawei Mate 40 Pro

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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System Plus Consulting is specialized in the cost analysis of electronics from semiconductor devices to electronic systems.

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.

Our services:

- **STRUCTURE & PROCESS ANALYSES**
- **TEARDOWN TRACKS**
- **CUSTOM ANALYSES**
- **COSTING SERVICES**
- **COSTING TOOLS**
- **TRAININGS**

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TERMS AND CONDITIONS OF SALES

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.

7. ENTRUSTED GOODS SHIPMENT

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).

8. FORCE MAJEURE

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?

9. CONFIDENTIALITY

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.

10. RESPONSABILITY LIMITATION

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.

11. APPLICABLE LAW

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

If the dispute cannot be settled out-of-court, the competent Court will be the Tribunal de Commerce de Nantes.