

**TECHNOLOGY
ANALYSIS**

AND

**COST
ANALYSIS**

OF

**ELECTRONIC
PRODUCTS**

**Reverse
Costing**
Integrated Circuits
Modules & MEMS

**Reverse
Costing**
Electronic
Boards & Systems

**Costing
Models
&
Cost Calculation
Software
Tools**

Training
Costing
Methods

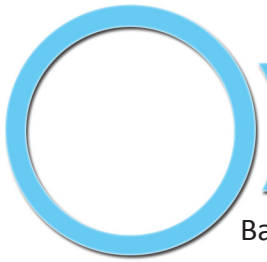


Since 1993, **System Plus Consulting**
has been analysing and modelling
the manufacturing cost of electronic devices.

Reverse Costing is the process of disassembling a device in order to identify its technology and calculate its manufacturing cost.

Reverse Costing analysis reports are used to:

- Validate projects costs at the R&D level,
- Enhance the negotiation power of purchasing managers,
- Benchmark competitors' products for marketing departments.



Reverse Costing

Integrated Circuits, Modules & MEMS

Based on a complete teardown process, Reverse Costing analysis reports provide:

- Description of the studied product in its environment,
- Physical characteristics & technological particularities,
- Analysis of the manufacturing process,
- Explanations of the calculation hypothesis,
- Calculation of the manufacturing cost & breakdowns,
- Estimation of the selling price.

Reverse Costing studies are either available on catalog or customer exclusive.



Reverse Costing

Electronic Systems & Boards

Reverse Costing analysis reports include:

- Complete teardown of the product,
- Step by step disassembling photos,
- Bill of material of the system and of each electronic board,
- Costing of the bill of material,
- Calculation of the assembly cost and the tests cost,
- Calculation of the manufacturing cost & breakdowns,
- Estimation of the selling price.

Integrated Circuits

ASIC, System on Chip (SoC), Advanced Packaging, ...

MEMS

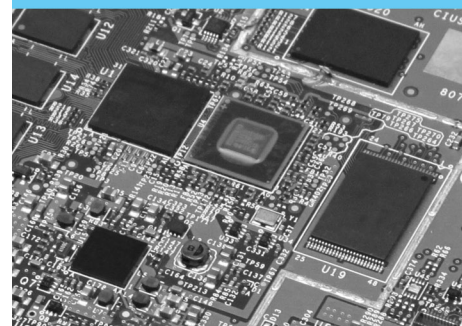
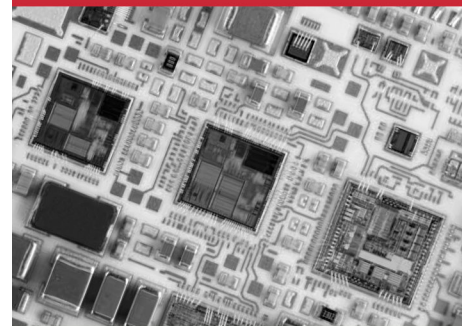
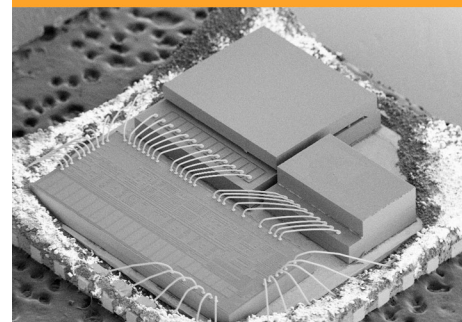
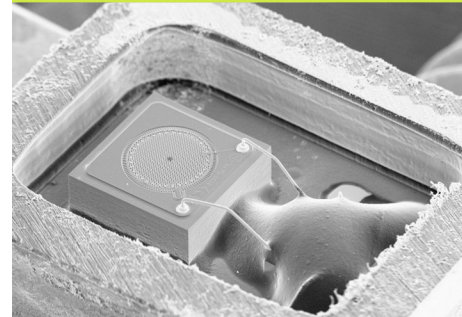
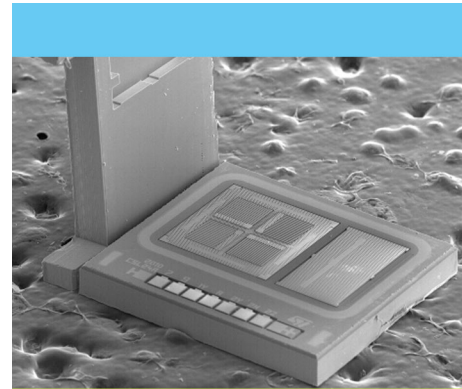
Accelerometer, gyroscope, microphone, compass, ...

Power Semiconductors

IGBT, MOSFET, HEMT, HB LED, power module, ...

Electronic Systems & Boards

Automotive, Telecom,
Industrial & Consumers products, ...





Costing Software

Process Based & Parametric Tools

All our services are mastered with the help of cost analysis software tools developed by SYSTEM PLUS CONSULTING, and most of these tools can be purchased under license.

Costing tools can be defined as either process-based tools, where a specific process has to be described using libraries of equipments and consumables, or parametric tools where costs are calculated from a set of parameters, a solution best suited to standardized technologies.

Most of tools are based on Excel™ interface and a separate database. Maintenance and support are available and data are frequently updated.

Customized costing tools may also be developed to answer specific needs.

| | Process-based Tools | Parametric Tools | Other Tools |
|---------------------|---------------------|------------------|-------------|
| Integrated Circuits | | IC Price+ | SoC.xl |
| MEMS | MEMS CoSim+ | | |
| Power Devices | Power CoSim+ | Power Price+ | |
| Modules | | | SiP.xl |
| Advanced Packaging | TSV CoSim+ | | |
| LED | LED CoSim+ | | |
| Electronic Boards | | PCB Price+ | Assembly.XL |
| Electronic Systems | SYSCOST | | |
| Photovoltaic Cells | PV CoSim+ | | |

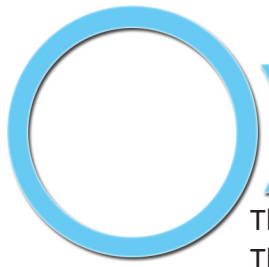


Training Sessions

Costing Methods of ICs and Boards

These two training courses are designed to provide updated information on technologies, production processes in Electronics and to explain their impact on manufacturing cost and selling price.

With a progressive approach toward an electronic product complexity auditors learn how to identify and handle cost sensitive parameters to make efficient strategic decisions.



Reverse Costing

Available Reports

The full collection is regularly updated on our website.

These reports can be ordered individually or under an Annual Subscription.

STMicroelectronics LIS3DH
MEMS 3-Axis Accelerometer

Bosch Sensortec BMA250
MEMS 3-Axis Accelerometer

Invensense ITG-3200
MEMS 3-Axis Gyroscope

STMicroelectronics L3G3250A
MEMS 3-Axis Gyroscope

VTI CMR3000
MEMS 3-Axis Gyroscope

AKM AK8973S
3-Axis Electronic Compass

Freescale MAG3110
3-Axis Electronic Compass

SensorDynamics SD746
MEMS 6 DoF IMU

Invensense MPU6000/6050
MEMS 6 DoF IMU

STMicroelectronics LSM330DLC
MEMS 6 DoF IMU

Freescale MPXY8300
MPXY8300 MEMS TPMS

Wispy A2101
MEMS Tunable Capacitors

Texas Instruments DMD
MEMS Pico Projector

Qualcomm Mirasol Display
MEMS Interferometric Modulator

Flir ISC0601B
Micro Bolometer

Knowles SPU0410LR5H
MEMS Microphone

Akustica AKU230
MEMS Microphone

Epcos T4060
MEMS Microphone

SiTime SiT8002
MEMS Oscillator

Discera DSC8002
MEMS Oscillator

EPC Corp. EPC2010
200V 25mΩ GaN Power Transistor

SemiSouth SJ17EP550
1700V 550mΩ SiC JFET Transistor

Cree CMF20120
1200V 80mΩ SiC MOSFET Transistor

Infineon IPB60R280C6
600V CoolMOS C6 MOSFET Transistor

Power Integrations Qspeed LXA20T600
600V 20A low QRR Silicon Diode

SMA Sunny Boy 3000TL
3kW Solar Inverter

Enphase Energy M215
215W Solar Micro-inverter

Involar MAC250A
250W Solar Micro-inverter

Infineon X-GOLD™ 213
eWLB Package

Casio Micronics EWLP 309-pin
Fan-In WLP Package

Texas Instruments MicroSiP™
AT&S ECP Embedded Die Process

Samsung Galaxy S2 Camera Module
Samsung 8Mpixel 1.4μm BSI CIS

Apple iPhone 4S Camera Module
Sony IMX145 8Mpixel 1.4μm BSI CIS

Nemotek Wafer-Level Camera Module
Shellcase MVP W-L Package OptiML™ W-L Optics

Flir i7
IR Thermographic Camera

Cree Xlamp XB-D
Cool White HB LED

Lumileds Luxeon S
Luxeon S LED



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