

LFOUNDRY COMPANY PROFILE



01

OVERVIEW



From the heart of ancient Europe, LFoundry, a SMIC majority-owned company, provides innovative solutions that reach all around the world, breathing life into our customers' visions. Fully committed to finding the best solutions to satisfy every specific necessity, LFoundry creates innovation to bring our partners' projects to life. When it comes to transforming innovation into reality, this is what makes LFoundry a world-class player.

Our leading and highly specialised foundry has an advanced 200mm manufacturing fab and proprietary technologies at 150 and 110 nm nodes, with MPW and MLM services available.

We provide special capabilities and know-how for CMOS Image Sensors through CIS optimised processes down to 90nm, as well as Back Side Illumination technology. We also provide excellent technology support for Optoelectronics such as SiPM, SPAD, X-Ray, as well as for DBI Bonding (3D-Stacking) and Smart Power and a vast range of applications for the automotive, industrial, medical, security, science and space imaging industries.

As a SMIC Company, LFoundry can leverage skills and capabilities of one of the leading semiconductor foundries in the world and the largest and most advanced foundry in mainland China.

OUR PLACE

In Avezzano (AQ - Italy), LFoundry is enabling innovation worldwide. We have a continuous commitment to guaranteeing a secure environment in which our customers can realise their ideas to the highest standard, relying on LFoundry as an indispensable partner to unleash their full potential.

DEDICATED FOUNDRY AT AVEZZANO

Since 2006, Avezzano site (former Micron Technology) has been manufacturing customer imaging process technologies and products using 180nm to 90nm technologies at the 200mm, including a volume copper Back End of Line (BEOL), Back Side Illumination processes (BSI) and extensive testing capabilities. The Company provides automotive ISO-TS16949, telecom TL9000 and ISO9001 quality management system certifications as well as OHSAS 18001 certification for health and safety management system and ISO 14001 certification for environmental management system.

SMIC GLOBAL PRESENCE

CUSTOMER SERVICE OFFICE: ACCOUNT MANAGEMENT & FAE

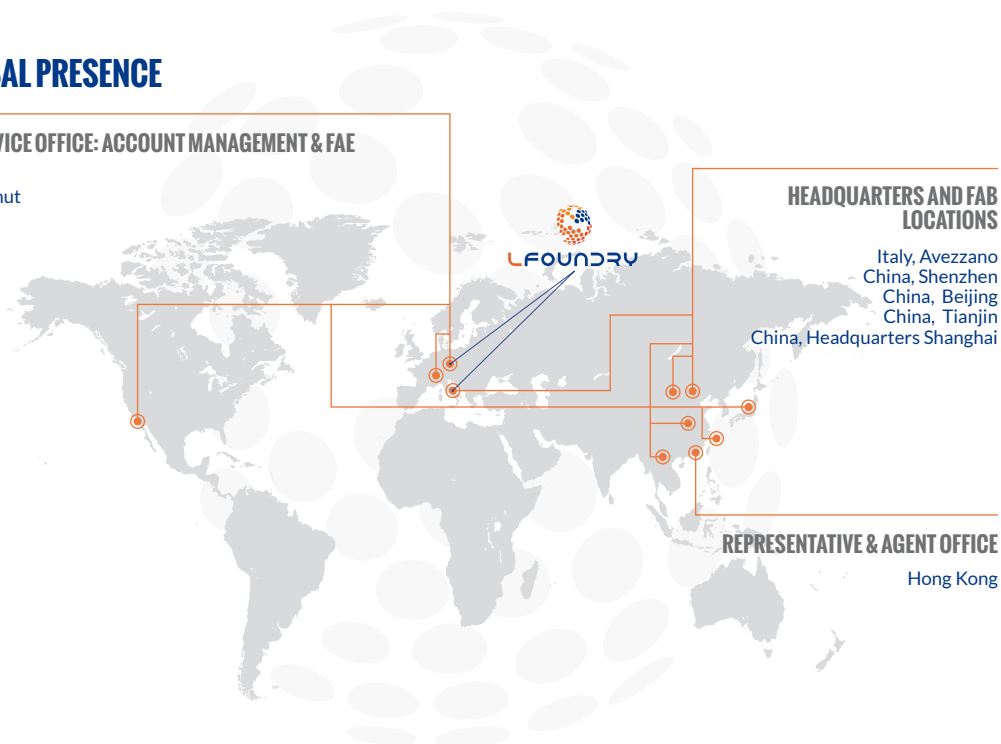
USA, San José
Germany, Landshut
Italy, Milan
Japan
Taiwan

HEADQUARTERS AND FAB LOCATIONS

Italy, Avezzano
China, Shenzhen
China, Beijing
China, Tianjin
China, Headquarters Shanghai

REPRESENTATIVE & AGENT OFFICE

Hong Kong



OUR WORDS

These are the words we choose to name our spirit and introduce LFoundry to the world.

This is what we are, where we go, what we do and how we do it.

Put simply, this is us.

MISSION

WE CREATE INNOVATIVE SOLUTIONS TO BRING OUR CUSTOMERS' VISION TO LIFE, SHAPING STRONG PARTNERSHIPS IN A HIGHLY SECURE ENVIRONMENT

VALUES

INITIATIVE

LFoundry promotes a spirit of initiative to find high-performance solutions. Driven by creativity to create value for and with its customers, making the right decisions at the right time.

Being part of SMIC a multinational company, we will foster innovation continuously and actively carry out product technology R&D, increasing productivity and optimizing work procedures.

FAIRNESS

LFoundry takes the initiative to understand customer's needs (both internal and external) to create tailor-made solutions, establishing highly collaborative relationships and a long term win-win partnership, founded on its dignity and integrity as a partner. We will be honest, defend important principles, commit to our words, and be responsible towards how our behavior influences the company and society.

QUALITY & SECURITY

We will conform to quality standards and carry out each task with a mindset on total employee participation, putting quality first and continual improvements. We also have a continuous commitment to guaranteeing a secure environment in which customers can realize their ideas to the highest standard, trusting in LFoundry as a valued partner to unleash their full potential.

RESILIENCE THROUGH EXECUTION

Rooted in LFoundry's history, these factors express the concept of resilience underlining the ability to interpret the context, go across significant change and come out victorious.

This value lays a strong foundation for the company to overcome the technological and circumstantial challenges of the future.

Through resilience the company can adapt itself at the context, elaborating standardized processes and creating strict disciplines. We will meet our goals through rigorous planning, efficient execution, detailed follow-up, and timely problem resolution, keeping in mind the environmental changes.

INTERDEPENDENCE

Conveys the ideas of interdependence and cooperation, specifically in the foundry-customer interrelationship, in individual work teams and between each member of Foundry's workforce. Company goals will be achieved by cooperation between disciplines, all taking the proper ownership and accountability while understanding each other's role and challenges for success. This value underlines the importance of the single parts of a larger system comprised of the foundry, its customers and its employees, simultaneously evoking their connection to the working process with a view to reaching a common goals.



02

COMPANY BASE DATA



REVENUE

MILLION \$:
225



CAPACITY

WAFER PER MONTH:
40.000



EMPLOYEES

1.500+



TECHNOLOGY TEAM

R&D ENGINEERING:
90

PROCESS & EQUIPMENT ENGINEERING:
110

DESIGN:
14

TECHNOLOGY

FAB CAPABILITY:

- 65nm Smallest Litho Feature
- 90nm Volume Production
- Al and Cu Metallization

TECHNOLOGY SPECIALIZATION:

- Optical Sensors (CIS, Discrete PD, SiPM)
- Analog and Mixed Signal
- Smart Power (LDMOS)

BASIC FOT CMOS PLATFORM:

Technology Nodes:

- 150nm
- 110nm

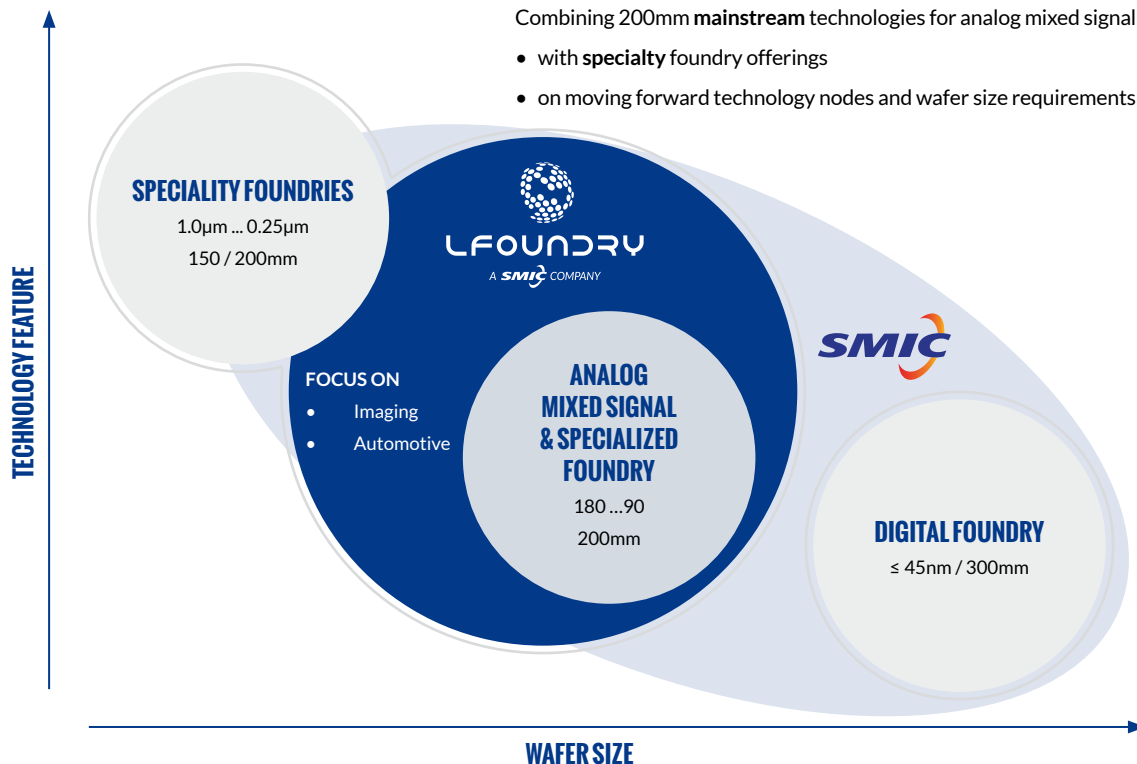
SPECIAL MODULES

- Back-side Process
- Wafer Thinning and Stacking
- Lithographic Stitching

POSITION STRATEGY

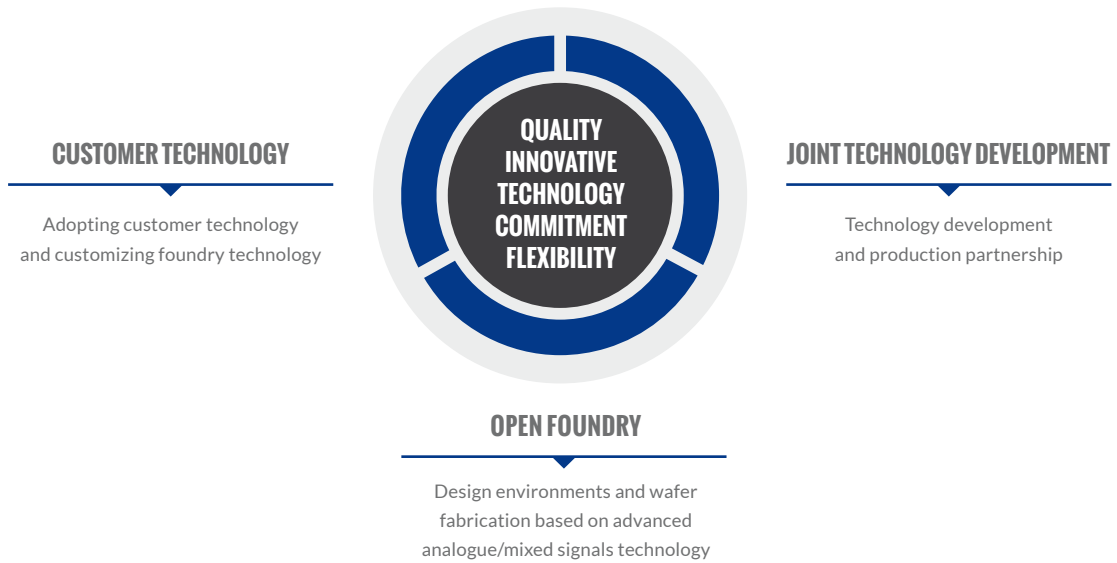
Combining 200mm **mainstream** technologies for analog mixed signal:

- with **specialty** foundry offerings
- on moving forward technology nodes and wafer size requirements



SERVICE MODEL

Innovative in technology, partnership-and supply-models in secure environment.



OPEN FOUNDRY

- Mainstream technology with modules
- PDK platforms
- Specific qualifications for automotive and security



CUSTOMER TECHNOLOGY

- Special know how and capabilities in imaging technology
- Volume aluminum and copper metallization
- Engineering know how for CMOS technology



JOINT TECHNOLOGY DEVELOPMENT

- Wide network to research center and leading universities in Europe

CERTIFICATIONS

- ISO 9001:2008, Quality Management
- ISO 16949:2009, Automotive Quality Management
- OHSAS 18001:1999, Health & Safety Management
- ISO 14001:2003, Environmental Management
- ISO/IEC 15408, Security common criteria (EAL 5+)

03

TECHNOLOGY



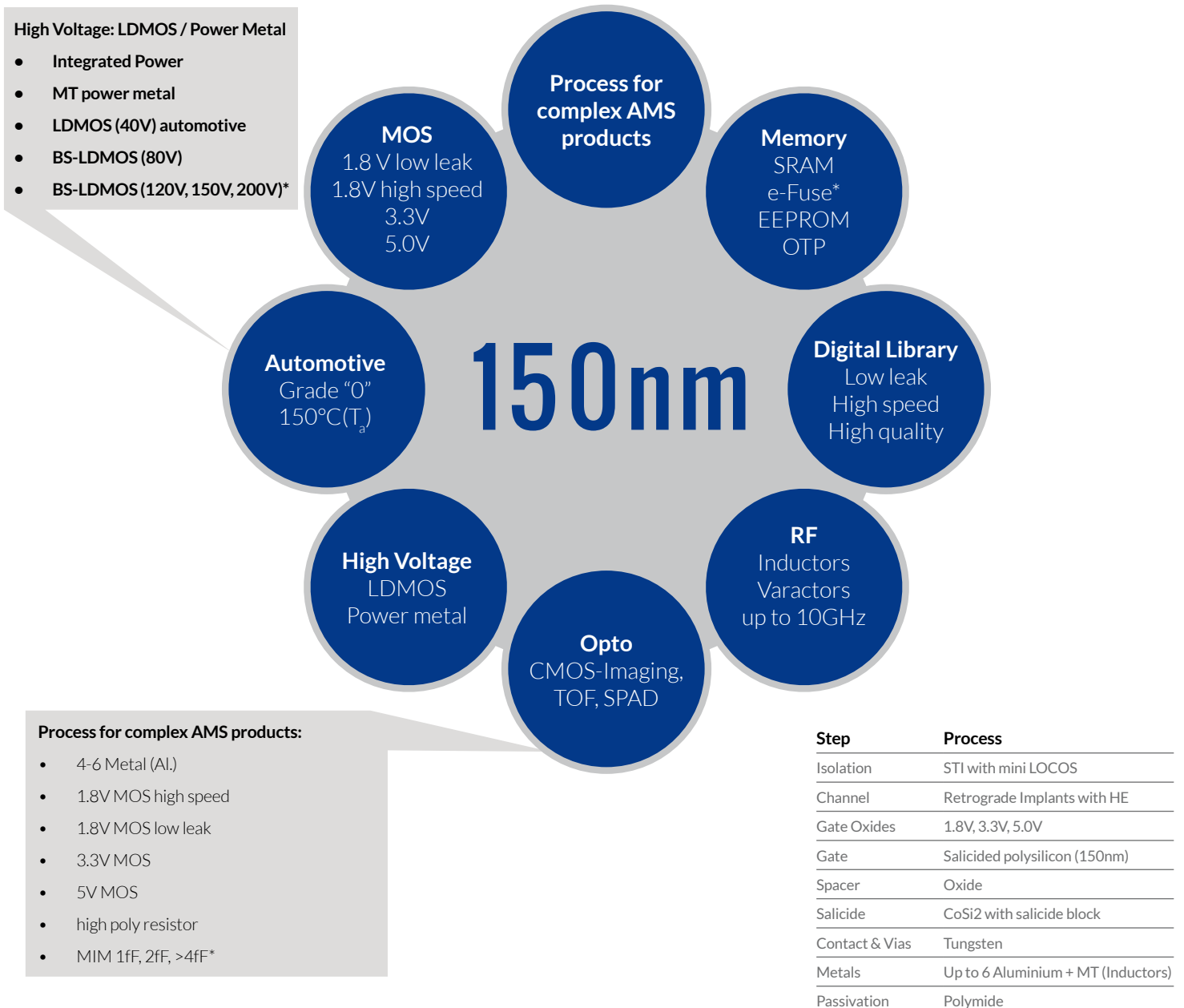
TECHNOLOGY PORTFOLIO

Designing complete systems today for the worldwide markets of tomorrow requires the correct identification, the efficient incorporation and the absolute protection of critical, reusable and fundamental intellectual property building blocks.

Every day, LFoundry demonstrates its flexibility. Company engineers meet with their customer's counterparts to decide whether to use customer IP exclusively, import third-party IP or to integrate LFoundry IP into a system-level design.

LFOUNDRY TECHNOLOGY 150nm

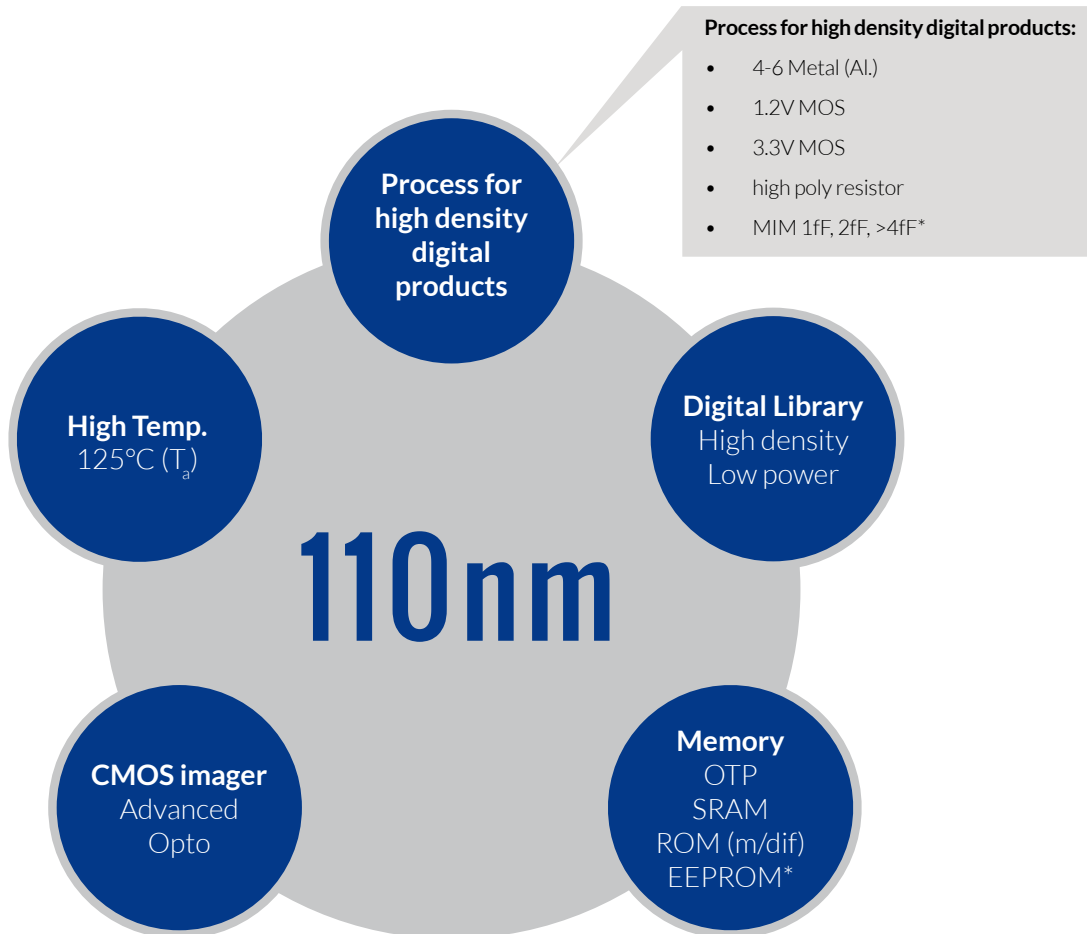
Wide field of mixed signal applications, including low power, high voltage and RF.



*Under development

LFOUNDRY TECHNOLOGY 110nm

The focus of the 0,11µm technology is in the low power and high speed area for analog, mixed-signal products with higher digital rate based on its 1.2V core.



Step	Process
Isolation	STI
Channel	Retrograde Implants with HE
Gate Oxides	1.2V - 3.3V
Gate	Salicided polysilicon (110nm)
Spacer	Oxide L-shape
Salicide	CoSi2 with salicide block
Contact & Vias	Tungsten
Metals	Up to 6 Alu
Litho	Down to 193nm ArF

*Under development

04

LFOUNDRY'S CODE OF ETHICS

LFOUNDRY'S CODE OF ETHICS

ETHICAL PRINCIPLES ARE CRUCIAL DRIVERS ON OUR PATH TOWARD A SUSTAINABLE FUTURE.

The Code of Ethics represents an unavoidable management tool for ethical conduct in business affairs, together with the rules and agreements in force in the countries where LFoundry is operating, both directly and indirectly, or through its subsidiaries and / or affiliates. The Code is also an effective element of corporate strategy and organization and is an integral part of the Organisational, Management and Control Model pursuant to Legislative Decree no. 231/01 (hereinafter the "Model").

The ethical principles inspiring LFoundry, and from which its models of conduct derive, in order to effectively and fairly compete in the market, improve the satisfaction of its customers, increase the value and develop people's skills and the professional growth are following:

- compliance with the laws
- ethics, fairness, professionalism
- impartiality
- people's honesty
- transparency and completeness of the information

All people at LFoundry, without any distinction and exception, undertake therefore to observe and enforce these principles, as part of their duties and responsibilities. This commitment requires that the persons, with whom the company is in relationship for whatever reason, act towards it according to the rules and methods based on the same values. In particular, the belief of acting to the benefit of the company shall not justify in any way behaviors that conflict

with these principles.

In this scenario, LFoundry is responsible for:

- promoting propagation of the Code among the recipients so that they can contribute to improve its principles
- and contents
- taking into account recipients possible suggestions and observations, in order to confirm or integrate the Code
- controlling the compliance with the Code by providing suitable information, prevention and control tools
- and procedures, and ensuring the transparency of operations and behaviors, implementing corrective actions, if necessary

The verification of compliance with the Code is performed by the Supervisory Body pursuant to Legislative Decree. 231/01 of the Company (hereinafter "OdV").

Bringing such principles and conduct to life is the essential element for the responsible growth of our company, whose aim is to be one of the best examples of business ethics at international level.

LFoundry's Code of Ethics and Model of Organization, Management and Control were approved by the Board of Directors of LFoundry S.r.l. on April 29, 2014; the 2nd version of both the Code of Ethics and the Model of Organization, Management and Control were approved by the BoD of LFoundry S.r.l. on June 16, 2016.

**BRINGING THE CODE
OF ETHICS PRINCIPLES
AND CONDUCT TO
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05

CORPORATE SOCIAL RESPONSIBILITY



CORPORATE SOCIAL RESPONSIBILITY

BEING A LEADING COMPANY MEANS BEING AN EXAMPLE TO THE WORLD WE LEAD.

HEALTH AND SAFETY

The Occupational Health and Safety (OHS) Management System, established at LFoundry according to standard OHSAS 18001:2007 is periodically audited and recertified by a Third Party. The company's performance in these disciplines demonstrates the effectiveness of the preventive and protective measures we adopt to safeguard and protect employees, visitors and contractors from occupational risks as well as those risks associated to any emergencies.

SECURITY

The Security Management System in LFoundry is intended to "safeguard people, information, goods and business continuity, guaranteeing an environment that infuses trust to investors, suppliers and customers." LFoundry is deeply committed to the protection of the Confidentiality, Integrity and Availability of Information, Goods, Processes, Materials and Products. Its aim is to reach this goal through the suitable use of technologies, methods, and trained personnel.

In order to reach and keep this goal LFoundry is involved in a Site Security Certification process, in accordance with the standard ISO 15408. This certification path is under the control of the Italian Body for Security Certification (OCSI: Organismo di Certificazione della Sicurezza Informatica: under the MISE (Italian Ministry for Economic Development). The plan for LFoundry is to reach an EAL5+ level certification. When success is achieved, we will be the first Italian company to be awarded this certification level.

ENVIRONMENT

The Environmental Management System established at LFoundry according to standard DIN ISO 14001:2004 is periodically audited and recertified by a Third Party; this demonstrates the effectiveness of the systems and methods we adopt as well as the continuous commitment to the environment as proof of our consistent compliance with regulations and the achievement of significant results in reducing the use of natural resources, energy consumption, raw materials and chemicals, waste disposal and employee transportation. LFoundry's commitment to environmental sustainability is further demonstrated by the implementation of the IECQ QC 080000 Hazardous Substance Process Management (HSPM) system, aiming to minimize or eliminate hazardous substances from the products supplied to our customers.

ENERGY

Energy Management plays a key role in supporting our plans to maximize profitability, strengthen our competitive position and provide customers with the highest quality products through the implementation of Best Key Methods (BKM). This has allowed LFoundry to become a benchmark company in terms of the rational use of energy, increasing the efficiency of energy production and utilization and the process management of the main sources of energy through a solid management of conventional and innovative activities and projects, while maintaining the conformity with laws and codes. The energy screening performed by LFoundry in

compliance with the guide UNI CEI 16247, strives to:

- maximize its energy performance, reducing operating expenses and increasing shareholder value by actively and responsibly managing energy consumption
- demonstrate commitment to our community and leadership in our industry, by reducing the environmental impacts associated to energy use
- identify strategic projects to achieve our energy management mission

WASTE MANAGEMENT

Waste is one of the focal areas of the LFoundry environmental policy. Semiconductor manufacture generates a large amount of hazardous and non-hazardous waste that contributes to environmental pollution, as well as resulting in costs for correct disposal. In order to effectively address the above issues, LFoundry coordinates a Consortium including other companies and the University of l'Aquila, focused on the LIFE BITMAPS project funded by the

European Community. The main objective of LIFE BITMAPS is to demonstrate a viable industrial solution for the aerobic biodegradation of TMAH (Tetra- Metyl Ammonium Hydroxide) which is a hazardous substance used in the Photolithography process.

WATER MANAGEMENT

Water is a key resource for semiconductor production. A large amount of ultrapure water is needed to run a production Fab, and same quantity is released as waste water at the end of the production cycle. LFoundry is actively investigating a solution to improve water usage efficiency, to reduce input needs at the facility, as well as aiming to release less polluted output water for the benefit of the environment. In order to effectively address the reduction of water consumption, the LIFE BITMAPS project funded by the European Community has included as additional objective: recycling of the main waste water stream at the Avezzano Wafer Fab.

06

QUALITY POLICY



WE CALL IT “QUALITY CULTURE”

LFOUNDRY’S APPROACH TO QUALITY.

The ability to bring our customers’ ideas to life, the spirit of interdependence, partnership, and fairness we instill, and the attention to a global concept of security all lead to a quality culture at LFoundry that protects our customers’ projects from the moment of their inception. Our competitiveness is grounded in the ability to satisfy our customers’ needs, and quality is the key which enables us to facilitate their success and guarantee its continuity.

The quality of our production is underpinned by a tightly structured and highly integrated process oriented management system, designed to ensure the safe transition from a flexible and innovative habitat in developmental stages to a mindful and controlled environment during series production. A profound application of risk management and LFoundry’s deployment of the best known methods of quality management are complemented by advanced, highly customised solutions for error prevention and process control to create the right environment for any project. Through our commitment to continuous improvement we ensure that the quality of our customers’ products undergoes constant enhancement, plotting a detailed roadmap to zero defects with our partners.

As a consequence of this steadfast management system, LFoundry is able to fulfill our customers’ most stringent requirements, even meeting the exacting standards of the automotive industry. Our management system is certified for compliance to ISO 9001:2008, ISO TS 16949 international standard and TL9000 v. 5.5/5.0.

The most rewarding recognition of our efforts toward global quality is the appreciation our customers voice to us regarding the tangible improvements they see in the performance and yield of their products. This builds strong and cohesive partnerships with mutual trust, conceived in the

earliest developmental stages of our collaborations and then consolidated in the management of mature products.

QUALITY POLICY

We are committed to partner with our customers to exceed their expectations.

Our competent and motivated team is engaged in providing the best innovative and reliable foundry solution, in a continuous effort to achieve zero defect and quality excellence.

KEY QUALITY ELEMENTS

PARTNER WITH OUR CUSTOMER TO EXCEED THEIR EXPECTATION

- WE STRONGLY BELIEVE THAT QUALITY EXCELLENCE MAY BE ACHIEVED ONLY PARTNERING WITH OUR CUSTOMERS.
- PARTNERSHIP STARTS SINCE THE ANALYSIS OF CUSTOMERS IDEA IN ORDER TO FIND THE RIGHT SOLUTION TO ENABLE THE ACHIEVEMENT OF THE MOST CHALLENGING TARGETS, TO PREVENT ISSUES AND TO ENHANCE FURTHER IMPROVEMENTS.
- DEVELOPMENT STAGES ARE MANAGED SIDE BY SIDE WITH OUR CUSTOMERS TO ENSURE A SAFE LAUNCH OF THE PRODUCTS AS A PREREQUISITE OF FUTURE CONSTANT DELIVERY OF QUALITY PRODUCTS.

BEST AND INNOVATIVE AND RELIABLE FOUNDRY SOLUTION

WE BRING CUSTOMER PRODUCTS TO LIFE THANKS TO OUR INNOVATIVE AND RELIABLE FOUNDRY SOLUTIONS.

WE FOLLOW A STAGE AND GATE APPROACH TO INTRODUCE NEW TECHNOLOGIES AND NEW PRODUCTS.

OUR PRODUCT LIFECYCLE MANAGEMENT FOLLOWS THE INDUSTRY STANDARD APQP (ADVANCED PRODUCT QUALITY PLANNING) PRINCIPLES. IT GUARANTEES A FAST AND RELIABLE PROCESS DEVELOPMENT AS WELL AS A SAFE LAUNCH IN SERIES PRODUCTION. THE COMPLIANCE WITH CUSTOMER REQUIREMENTS IS CONSTANTLY VERIFIED IN EVERY PROJECT PHASE.

COMPREHENSIVE RELIABILITY PROGRAM FOR PROCESS AND TECHNOLOGY QUALIFICATION ACCORDING INTERNATIONAL STANDARDS LIKE JEDEC JP001 ARE APPLIED.

CONTINUOUS EFFORT TO ACHIEVE ZERO DEFECT

OUR STRUCTURED APPROACH TO DEFECT AND VARIABILITY REDUCTION ENSURES CONSTANT IMPROVEMENT OF PROCESSES AND PRODUCTS.

FEEDBACK FROM CUSTOMERS AND FROM THE FIELD ARE PART OF THE INPUTS TO OUR CONTINUOUS IMPROVEMENT AND ROADMAP TO ZERO DEFECT

QUALITY EXCELLENCE: MANAGEMENT BY PROCESS

QUALITY EXCELLENCE AND SUPERIOR CUSTOMER SATISFACTION IS ENSURED THANKS TO A MANAGEMENT BY PROCESS OF THE WHOLE VALUE CHAIN.

- from customer requirements to product development
- from selection and management of suppliers to product fabrication
- from monitor of processes to management review
- from opportunity of improvement to change management

OUR QUALITY MANAGEMENT SYSTEM HAS BEEN DESIGNED TO SATISFY CUSTOMERS NEEDS AND EXPECTATIONS, MEET STATUTORY AND REGULATORY REQUIREMENTS AND CONTINUALLY IMPROVE PROCESSES AND PRODUCTS.

OUR MANAGEMENT SYSTEM IS CERTIFIED FOR COMPLIANCE TO ISO 9001:2008 AND ISO TS 16949 INTERNATIONAL STANDARD.

QUALITY EXCELLENCE: PROCESS CONTROL

WE HAVE FULLY AUTOMATED PRODUCTION ENVIRONMENT TO PREVENT PROCESS DEVIATION AND DETECT PRODUCT ANOMALIES:

- Electronic Control Plan (paperless)
- Automated Process Control Architecture
- Real time SPC system for control of critical inline parameters
- FDC (Fault Detection and Classification) tools to detect process variations
- APC (Advanced Process Control and automatic adjustments) to reduce process variations
- OCAP treatment and documentation, including non Conformity product segregation
- Quality checks for production equipment automatically controlled by structured QC models
- Safe process recipe management
- Fully automated poka yoke tools to prevent misprocesses and mis-operation



07

LFOUNDRY IS A SMIC COMPANY

ABOUT SMIC

Semiconductor Manufacturing International Corporation ("SMIC"; NYSE: SMI; SEHK: 981) is one of the leading semiconductor foundries in the world and the largest and most advanced foundry in mainland China. SMIC provides integrated circuit (IC) foundry and technology services on process nodes from 0.35 micron to 28 nanometer. Headquartered in Shanghai, China, SMIC has an international manufacturing and service base. In China, SMIC has a 300mm wafer fabrication facility (fab) and a 200mm mega-fab in Shanghai; a 300mm mega-fab and a majority-owned 300mm fab for advanced nodes in Beijing; 200mm fabs in Tianjin and Shenzhen; and a majority-owned joint-venture 300mm bumping facility in Jiangyin; additionally, in Italy SMIC has a majority-owned 200mm fab. SMIC also has marketing and customer service offices in the U.S., Europe, Japan, and Taiwan, and a representative office in Hong Kong. For more information, please visit www.smics.com.

