GENERAL INFORMATION

Name: Alfonso
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EXPERIENCE

Apulian Aerospace Consortium S.c.a.r.l., Brindisi, Italy   June 2015 to present
The Apulian Aerospace Consortium is an industrial aggregation of 6 small & medium enterprises (SMEs) with cross specializations in the aerospace production's areas, from composites to machined parts, from metal sheets parts to galvanic treatments, from design to the final assembly of aerostructures and their painting. Together these SMEs form a medium size corporation, aspiring to be a Tier-1 supplier for the main international aircrafts manufacturers.
CEO/Founder of Apulian Aerospace Consortium S.c.a.r.l. & Verne Group SAS (Toulouse, France)
- Directing the first steps of this new industrial development model, called "distributed fab", on a specific territory and a worldwide market.

CMC S.r.l., Carovigno, Italy   March 2007 to present
CMC S.r.l., established in 1981, operates mostly in the aeronautics sector which remains today its core business. Extended on a 22000 sq.mt headquarter landscape area, it includes a 2500 sq.mt production area, a 200 sq.mt storage area and 1200 sq.mt of offices and laboratories space. CMC S.r.l. offers a complete mechanical product solution, spanning from the design and fabrication of aerospace components to the assembly of their structures. Beside mechanical products and assembly of aeronautics structures, CMC S.r.l. has created a new division, called CMC Labs, focused on the development and production of innovative solutions of systems and devices for Wireless Sensors Network (WSN). Its technology core brings wireless and green solutions to sensor networks, to be used in a wide range of applications, leading the benefit of increased lifetime (up to perpetual operation) and installation readiness, while drastically reducing the need of human intervention.
Systems products provide customizable WSN platforms based on:
- Sensors nodes with energy harvesting capability and multisensors data acquisition;
- Power efficient and standards' compliant communication protocols;
- Highly configurable gateway for data aggregation.
General Manager of CMC S.r.l. / Founder & COO of CMC Labs Business Unit
- Responsible for the production of aeronautical products, their mechanical design and certification's services;
- From 2007 till today CMC's turnover passed from 0,9M€ to 4,4M€ and the employees passed from 9 units to 82;
- Founder of CMC Labs Division, developing IoT & Industry 4.0 services and solutions for industry, transportation, oil & gas, smart cities & buildings, utilities (water, gas and electricity) and aerospace (military & civil) markets.

Linear Technology Corporation, North Chelmsford, MA, USA   September 2003 to March 2007

Linear Technology Corporation (Nasdaq: LLTC) designs, manufactures and markets a broad line of high-performance standard linear integrated circuits using silicon gate CMOS, BiCMOS and Complementary Bipolar wafer fabrication process technologies. Linear circuits provide an essential bridge between the analog world and the digital microelectronics used in wireless communications, notebook and handheld computing, computer peripherals, medical systems, factory automation, automotive electronics, military technologies and many other applications. For customers in these industries, Linear Technology provides operational, instrumentation and audio amplifiers, voltage regulators, power management devices, DC/DC converters and voltage references, comparators, monolithic filters, communications interface circuits, one-chip data acquisition subsystems, pulse-width modulators and sample-and-hold devices.

Senior Design Engineer/Project Leader

Responsible for the design, simulation and characterization of complex circuits in the area of power management and battery chargers as well as data converters. All designs were realized in 0.6μm and 1.25μm bulk CMOS proprietary technology or TSMC 0.13μm, 0.18μm or 0.25μm CMOS.

- Responsible for the product definition, design and industrial production (>10 million of chips per project) of SmartChargers/PowerPath microchips for specific niche's markets and customers such as Samsung, Apple, Nokia and others (chip's names: LTC4061, LTC4061-4.4, LTC4062, LTC4065, LTC4076, LTC4077, LTC4088, LTC4096, LTC4097).
- Strategic studies to find new markets and customers and to define technologies and designs to keep the leadership in the sector of battery chargers, power management and data converters.
- In the past three years generated new products with a gross sales' revenues of >50M$.
- Working with MIT Electrical Engineering Dept. to recruit and hire top talent students from master and PhD programs.

LNX Corporation, Salem, NH, USA   April 2003 to June 2003

LNX develops radio frequency subsystems for carrier-class, broadband wireless access and backhaul networks transceiver. It has equipment and intellectual property licenses required to manufacture and supply high GHz bands (microwave) integrated transceiver products and works also in the military business area.

Consulting Engineer (through GCD)

Overviewed a complex ASIC design in CMOS 0.18μm for an European military project (EuroFighter tactical airplane). The purpose of the project was to integrate on a single chip the circuitry then available on three different boards, with enormous gain in term of space, reliability and power consumption. It was formed by an analog front-end side to convert signals for the digital part where the information were managed and elaborated by an external computer before sending them back on chip for further elaborations.

- Simulated and re-designed the front-end preamplifier to respect the technical specifications of the system in terms of frequency and signal amplitudes.
- Simulated the analog to digital data converter and made changes to accommodate the military requirements in terms of temperature and power supply stability.
- Verified the layout strategy to accommodate changes to minimize offsets and parasitic effects and to optimize matching.

Global Communication Devices, Inc., North Andover, MA, USA   October 2001 to June 2003

GCD is a fabless semiconductor company that designs radio frequency integrated circuits (RFIC) and targets those RFICs for markets in the growing wireless LAN (WLAN) for 802.11 or Wi-Fi opportunities and other highly integrated RFIC semiconductors.

Design Engineer

Responsible for the design, simulation and characterization of complex RF circuits for wireless LAN applications. Those designs included data converters, local oscillators, PLLs, VCOs, varactors and

active DC biasing circuits. All designs were realized in 0.25μm and 0.18μm bulk CMOS.

- Design and simulation of continuous time sigma-delta data converters for wireless applications (e.g. Bluetooth, 802.11a/b/g).
- Developed in-house applications to evaluate the substrate noise problems based on physical geometries, in 3-D, associated with mixed mode circuits containing both analog and digital components. This yielded to an R-C network that was used successfully in time-domain simulators such as Cadence SpectreRF or PSPICE.
- Developed applications in MATLAB for the evaluation at the system level of phase noise and jitter in PLL and DLL circuits. The results from these applications drove the system level specifications for the rest of the design.
- Redesigned the entire local oscillator (LO) chain and the PLL of the new chip to achieve the correct performance needed for IEEE Standards for 802.11b/g. The revised PLL achieved the required front end performances implemented in 0.25μm CMOS technology.
- Involved in the redesign of an on-chip VCO for higher data rate WLAN transceiver (better phase noise).
- Mentoring with senior project managers to learn how to manage microelectronics projects and how to create new businesses with European and military markets.
- Design, simulation and evaluation of integrated passive components in silicon to achieve higher performance characteristics such as inductors and varactors.
- Supervised lab technicians in the measurement and characterization of RFICs.

Integrated MicroSystem Labs, University of Pavia, Pavia, Italy   February 2001 till October 2001
Research Assistant
Designed high performance microelectronics devices such as data converters and all their internal circuits as part of a research program. The responsibilities included managing a group of master and PhD students (5 people) over a data converter project for wireless standards: UMTS for China and CDMA2000 for the US market. This effort was funded by Siemens and Texas Instruments.

- Overviewed all the project flow from the definition of the different groups' duties to the technical guidance to develop the single subsystems of the data converter.
- Headed the developing of the internal clock generator, comparators topologies, operational amplifiers, digital conversion and filtering.
- Started to develop the layout plan and the verification's procedures for testing and design's reliability and consistency.

Texas A&M University, College Station, TX, USA   July 2000 through December 2000
Research Associate
Participated in the research and development of the cutting-edge pass band sigma-delta modulators used in the global UMTS standard of mobile telecommunication systems.
- Based on an original concept, generated a mathematical model for this modulator and subsequently simulated all of the real-world effects on this device.
- Designed, generated the physical layout and fabricated the electronic circuits of this 0.18μm CMOS 1.8V technology modulator.

Siemens ICN Group, Milan, Italy   July 1999 till February 2000
Engineering Internship
Worked as intern on the fast data converters design: the study of the GSM, DCS1800 and GPRS standards and networks led to better understand which parameters were important to increase the performances of the data converters in the BTS stations and then the electronic devices were re-designed using the feedbacks from these researches.

EDUCATION

PhD student (part-time) at the Electrical and Computer Engineering Department of Northeastern University in Boston, working on nanoelectronics, direct IF ADCs, RF (wireless systems), low power design, analog and mixed mode signals and bioelectronics microchips design. Dissertation thesis never finished, since the relocation back to Italy in 2007.

On May 2001 awarded with the title of Doctor in Engineering from the Republic of Italy.

Master Degree at the University of Pavia, Pavia, Italy on January 2001.

Degree in Electronics Engineering with a specialization in microelectronics and telecommunications

Master thesis topic: Study and design of a Sigma-Delta band pass architecture for UMTS applications. The required specifications are: SNR 85dB, band pass 77.5MHz – 82.5MHz. The above specifications have been satisfied with a 4th-order 4th-path structure.

Publications: A. Centuori, U. Gatti, P. Malcovati and F. Maloberti **"A 320MHz Four-Paths Bandpass Sigma-Delta Modulator"** Proceedings of IEEE Instrumentation and Measurement Technology Conference (IMTC 2002), Anchorage, USA, Vol.1, pp.497-500, May 2002.

G. Bernardinis, A. Centuori, U. Gatti, P. Malcovati, F. Maloberti **"Bandpass Sigma-Delta Modulator with 5MHz Bandwidth and 80MHz IF"** Conference ADDA 2002, Praga, Czechoslovakia.

Books: Reviser and technical consultant of the book "F. Maloberti, **Analog Design for CMOS VLSI Systems**, Kluwer International Series Editor".

Co-author of a chapter of the book "**The Economics of Knowledge and the Public Dimensions of the Knowledge Economy**", published by OCSE (ISBN 92-64-10560-3) and by Oxford Press University.

Reviser and technical consultant of the book "**Mems And Microstructures in Aerospace Applications**", published by CMC Press (ISBN 0824726375).

Patents:
- no.1 US & International patent issued (USPTO Application #: 20070216380);
- no.1 patent pending (PCT/IB2015/052816): Managing Method of a Plurality of Physical Layer Transceivers and Device Implementing the Method.

Awards:
- Aerospace & Defence Deputy at Confindustria Puglia (2011-present);
- Vice president Apulian Aerospace District (2014-present);
- Member of IEEE;
- Member of AIAA;
- Granted in 2001, Member of the Council of the University of Pavia for the Electronics Engineering Department;
- Primary representative of Aerospace and Electronics Systems Society (AESS), Member Society, for Nanotechnology Technical Committee (NTC) at

IEEE;
- Technical Advisor for IEEE-USA for nanotechnology and microelectronics;
- Awarded scholarship by INPDAI in 1992, 1993, 1994;
- Awarded scholarship by the Milan Polytechnic University in 1995.

OTHER ACTIVITIES

- Starting September 2001 to August 2004, member of the study group for OECD/CERI (**OCSE**) working on "The economics of knowledge and the public dimensions of the knowledge-driven economy". This work ended in an OCSE publication, selected personal publications and an academic book edited by Oxford Press University. In this project we were involved with some of the most famous economics' authors and professors from MIT, Oxford, Cambridge, Stanford, National Research Council – National Academy of Science (Washington DC) and many others.

- Worked with IEEE-USA and Nanotechnology Technical Committee (NTC) for the Aerospace and Electronics Systems Society (AESS) in Washington DC to technically inform the representatives and senators of the US government about nanotechnologies and to request the sign of the 21st Century Nanotechnology Research and Development Act into law (3.7B$).

- Proposed to Comcast (New England business area) to open the Italian channel for the local community. Worked on the business plan with the Director of Ethnical Programs of Comcast and got the agreement with RAI International and the channel's opening on June 2004.

- Technical advisor for the New England IACT Chamber of Commerce and the Italian Consulate in Boston.

- New technologies technical advisor for some venture capital firms in the US, EU and Middle East.