

Curriculum scientifico (Prof. Giulio Giuseppe Marotta)

- 1 anno come Process e Test Engineer in impianto di assemblaggio di transistori discreti di potenza.
- 18 anni come progettista di circuiti integrati e responsabile di progetto presso il dipartimento di Ricerca e Sviluppo della Texas Instruments Italia a Rieti, ad Avezzano (AQ) e presso il VLSI Design Center del Central Research Lab della Texas Instruments Incorporated?

Dallas- 15 anni, dal 1999, come Project Manager presso il Dipartimento di Ricerca e sviluppo della Micron Italia in Avezzano (AQ).

Interessi di ricerca: circuiti analogici bipolari e CMOS, sistemi integrati mixed signal, convertitori A/D e D/A, interfacce contactless, reti neurali, memorie associative, pattern recognition, memorie non volatili a floating gate (EPROM, EEPROM, NOR-Flash, NAND-Flash) e RRAM, memorie ferroelettriche e spintroniche, metodologie di progetto e CAD

Progetti eseguiti:

- SN94516: circuito monolitico in tecnologia bipolare per il controllo di lampade di emergenza.
- TCM 1715: forchetta telefonica attiva in tecnologia bipolar
- TCM 1725: forchetta telefonica attiva in tecnologia bipolare
- TCM 1745: forchetta telefonica attiva in tecnologia bipolare
- SN94512: Car Check Controller monolitico in tecnologia bipolare
- SN94914: Circuito di interfaccia per sensore di livello d'olio termoresistivo. Tecnologia CMOS.
- TCM 3642: Transponder passivo integrato in tecnologia CMOS+Eeprom (primo al mondo con Eeprom a bordo)
- TMS 3637: Trasmettitore / Ricevitore per controllo remoto. Tecnologia CMOS + Eeprom
- TMS87C510:
- 512Kbit Eeprom con multiplexed I/O/TMS87C110 : 1 Mbit Eeprom con multiplexed I/O
- TLE2301: Amplificatore Operazionale di potenza in tecnologia bipolare-jfet.
- Libreria di moduli EPROM per applicazioni embedded in microcontrollori della famiglia TMS 370 C8/C16.
- Libreria di moduli EEPROM per applicazioni embedded in microcontrollori della famiglia TMS 370 C8/C16
- Libreria di moduli FLASH EPROM per applicazioni embedded in micro controllori della famiglia TMS 370 C8/C16 e DSP della famiglia TMS 320. (prime flash embedded al mondo prodotte in volumi ).
- Chips di memoria NOR-Flash per applicazioni wireless
- Chips di memoria NAND-Flash multilivello fino a 4 bit per cella: <http://www.micron.com/products/nand-flash/slc-nand> <http://www.micron.com/products/nand-flash/mlc-nand> <http://www.micron.com/products/nandflash/tlc-nand>

Autore di 65 brevetti di invenzione industriale: PAT. NO. Title 8,407,400 Dynamic SLC/MLC blocks allocations for non-volatile memory 8,405,444

Voltage switching in a memory device 8,248,862

Source bias shift for multilevel memories 8,217,705 Voltage switching in a memory device 8,174,897

Programming in a memory device 8,144,525

Memory cell sensing using negative voltage 7,983,088

Programming in a memory device 7,978,556

On-chip temperature sensor 7,948,802

Sensing memory cells 7,701,776

Low power multiple bit sense amplifier 7,635,991

Output buffer strength trimming 7,630,265

On-chip temperature sensor 7,440,332

Low power multiple bit sense amplifier 7,403,423

Sensing scheme for low-voltage flash memory 7,324,381

Low power multiple bit sense amplifier 7,271,620

Variable impedance output buffer 7,238,981

Metal-poly integrated capacitor structure RE39,697

Method of making floating-gate memory-cell array with digital logic transistors 7,206,240

Fast sensing scheme for floating-gate memory cells 7,200,041

Sensing scheme for low-voltage flash memory 7,161,376

Variable impedance output buffer 7,064,582

Output buffer strength trimming 7,057,416

Enhanced protection for input buffers of low-voltage flash memories 7,034,587

Conditioned and robust ultra-low power power-on reset sequencer for integrated circuits 7,034,575

Variable impedance output buffer 7,009,241

Metal-poly integrated capacitor structure 6,940,310

Enhanced protection for input buffers of low-voltage flash memories 6,924,676

Conditioned and robust ultra-low power power-on reset sequencer for integrated circuits 6,911,862

Ultra-low current band-gap reference 6,906,956

Band-gap voltage reference 6,898,131

Voltage and temperature compensated pulse generator 6,897,511

Metal-poly integrated capacitor structure 6,822,904

Fast sensing scheme for floating-gate memory cells 6,813,190

Methods of sensing a programmed state of a floating-gate memory cell 6,807,111

Voltage and temperature compensated pulse generator 6,801,079

Ultra-low current band-gap reference 6,795,343

Band-gap voltage reference 6,751,121

Flash memory array architecture 6,697,284

Flash memory array structure 6,697,283

Temperature and voltage compensated reference current generator 6,687,161

Sensing scheme for low-voltage flash memory 6,643,192

Voltage and temperature compensated pulse generator 6,628,142

Enhanced protection for input buffers of low-voltage flash memories 6,584,035

Supply noise reduction in memory device column selection 6,525,410

Integrated circuit wireless tagging 6,475,846

Method of making floating-gate memory-cell array with digital logic transistors 6,368,901

Integrated circuit wireless tagging 6,262,914

Flash memory segmentation 6,191,976

Flash memory margin mode enhancements 6,118,706

Flash memory block or sector clear operation 5,907,171

Method of making floating-gate memory-cell array with digital logic transistors 5,874,849

Low voltage, high current pump for flash memory 5,844,839

Programmable and convertible non-volatile memory array 5,815,026

High efficiency, high voltage, low current charge pump 5,732,021

Programmable and convertible non-volatile memory array 5,717,634

Programmable and convertible non-volatile memory array 5,715,195

Programmable memory verify "0" and verify "1" circuit and method 5,704,014

Voltage-current conversion circuit employing MOS transistor cells as synapses of neural network 5,703,807

EEPROM with enhanced reliability by selectable V.sub.PP for write and erase 5,563,959

Character recognition 5,557,569

Low voltage flash EEPROM C-cell using fowler-nordheim tunneling 5,457,771

Integrated circuit with non-volatile, variable resistor, for use in neuronic network 5,319,604

Circuitry and method for selectively switching negative voltages in CMOS integrated circuits 5,299,286

Data processing system for implementing architecture of neural network subject to learning process 5,274,743

Learning system for a neural net of a suitable architecture, physically insertable in the learning process

## Pubblicazioni:

A 3bit/cell 32Gb NAND flash memory at 34nm with 6MB/s program throughput and with dynamic 2b/cell blocks configuration mode for a program throughput increase up to 13MB/s Marotta, G.G.; Macerola, A.; D'Alessandro, A.; Torsi, A.; Cerafogli, C.; Lattaro, C.; Musilli, C.; Rivers, D.; Sirizotti, E.; Paolini, F.; Imondi, G.; Naso, G.; Santin, G.; Botticchio, L.; De Santis, L.; Pilolli, L.; Gallese, M.L.; Incarnati, M.; Tiburzi, M.; Conenna, P.; Perugini, S.; Moschiano, V.; Di Francesco, W.; Goldman, M.; Haid, C.; Di Cicco, D.; Orlandi, D.; Rori, F.; Rossini, M.; Vali, T.; Ghodsi, R.; Roohparvar, F. Solid-State Circuits Conference Digest of Technical Papers (ISSCC), 2010 IEEE International Digital Object Identifier: 10.1109/ISSCC.2010.5433949 Publication Year: 2010 , Page(s): 444 - 445 Cited by: Papers (10) IEEE Conference Publications | |

Quick Abstract | PDF (210 KB) | HTML Contactless inductive-operation microcircuits for medical applications Talamonti, L.; Porrovecchio, G.; Marotta, G. Engineering in Medicine and Biology Society, 1988.

Proceedings of the Annual International Conference of the IEEE Digital Object Identifier: 10.1109/IEMBS.1988.95076 Publication Year: 1988 , Page(s): 818 - 819 vol.2 Cited by: Papers (2) | Patents (1) IEEE Conference Publications A 128Gb 3b/cell NAND flash design using 20nm planar-cell technology Naso, G.; Botticchio, L.; Castelli, M.; Cerafogli, C.; Cichocki, M.; Conenna, P.; D'Alessandro, A.; Santis, L.D.; Cicco, D.D.; Francesco, W.D.; Gallese, M.L.; Gallo, G.; Incarnati, M.; Lattaro, C.; Macerola, A.; Marotta, G.; Moschiano, V.; Orlandi, D.; Paolini, F.; Perugini, S.; Pilolli, L.; Pistilli, P.; Rizzo, G.; Rori, F.; Rossini, M.; Santin, G.; Sirizotti, E.; Smaniotto, A.; Siciliani, U.; Tiburzi, M.; Meyer, R.; Goda, A.; Filipiak, B.; Vali, T.; Helm, M.; Ghodsi, R. Solid-State Circuits Conference Digest of Technical Papers (ISSCC), 2013 IEEE International Digital Object Identifier: 10.1109/ISSCC.2013.6487707 Publication Year: 2013 , Page(s): 218 - 219

IEEE Conference Publications | | Quick Abstract | PDF (341 KB) | HTML Measurement system for a preliminary characterisation of flash memory cells for multilevel applications Bucci, G.; Faccio, M.; Landi, C.; Marotta, G. Instrumentation and Measurement Technology Conference, 1998. IMTC/98. Conference Proceedings. IEEE Volume: 1 Digital Object Identifier: 10.1109/IMTC.1998.679839 Publication Year: 1998 , Page(s): 506 - 510 vol.1

IEEE Conference Publications | | Quick Abstract | PDF (408 KB) A new low cost fingerprint recognition system on FPGA Alilla, A. ; Faccio, M. ; Vali, T. ; Marotta, G. ; DeSantis, L. Industrial Technology (ICIT), 2013

IEEE International Conference on Digital Object Identifier: 10.1109/ICIT.2013.6505806 Publication Year: 2013, Page(s): 988 - 993

IEEE Conference Publications | | Quick Abstract | PDF (883 KB) | HTML Full-Wave Modeling of Inductive Coupling Links for Low-Power 3D System Integration Giulio Antonini, Daniele Romano and Giovanni De Luca, Università degli Studi dell'Aquila, Aquila, Italy; Tommaso Vali, Giulio Marotta, and Luca De Santis, Micron Italia, Italy - 2013

IEEE International Symposium on Electromagnetic Compatibility - EMC 2013 - "Memory Card Resident Character Recognition System " Proceedings of the PC Card Symposium hosted by PCMCIA, May 92, Santa Clara (CA)

- "A high speed embedded flash memory for DSP and MCU applications" Proceedings of the European Microprocessor and Microcontroller Seminar, 1996.

- "Memoria Flash embedded per microcontrollori e DSP" Alta Frequenza, marzo-aprile 1997, p. 33- " Modulo di memoria E2PROM embedded single poly " Alta Frequenza, marzo-aprile 1997, p. 43 - " Non volatile memory technologies with emphasis on Flash" IEEE Press Series on Microelectronic Systems John Wiley & Sons - Hoboken NJ - 2008