



Towards a Tuscany agenda for the European ICT research

Embedded Electronics Systems

Research and Technology Transfer Activities

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Mission and Focus

KEYWORDS

Hardware-Software, Integrated Electronics, Digital Signal Processing, Smart Power, Sensor Interfacing/networking, VLSI, FPGA, Microcontroller, GPU, System-on-Chip, Multi Processor systems, Network on Chip, Machine Vision

MISSION & FOCUS

RESEARCH of innovative solutions within an international context (patents, publications on high IF journals, leading EU/national projects, Management of International Conference, Standards, Journal issues)

TRANSFER OF INNOVATIVE TECHNOLOGIES from research to industry (Big company and SME) in the field of HW-SW electronic systems

FOCUS on advanced research projects about methodologies, design and prototyping/testing of electronic systems and nano/microelectronics



Academic Collaborations

Universities

- RWTH Aachen, D
- TU Kaiserslautern, D
- University of California at Berkeley, at Santa Barbara US
- Technical University of Tampere, FI
- Politecnico di Torino, I
- Università di Trieste, I
- Politecnico delle Marche, I
- Politecnico di Bari, I
- Università di Catania, I

Research Centers/Agencies

- CERN, CH
- ESA / ESTEC, NL
- IMEC, BE
- ASI, IT
- CNR-TO, IT
- CNR-PI, IT
- INFN, IT

Networks of Excellence

- Newcom: NoE in Wireless Communications
- HiPEAC: NoE on High-Performance Embedded Architecture and Compilation

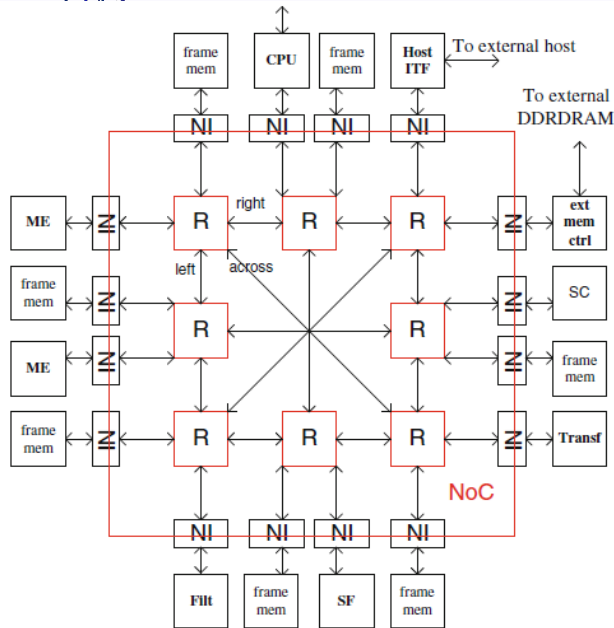


Technology Transfer

	R&D divisions of big companies	Small/medium sized enterprises	Government institutions & agencies
Telecom & Multimedia	 		
Healthcare	 	   	 
Space, Military & Defense, Nuclear physics	   	  	     
Automotive & Industrial	    		  



From MP-SoC for RealTime MultiMedia..

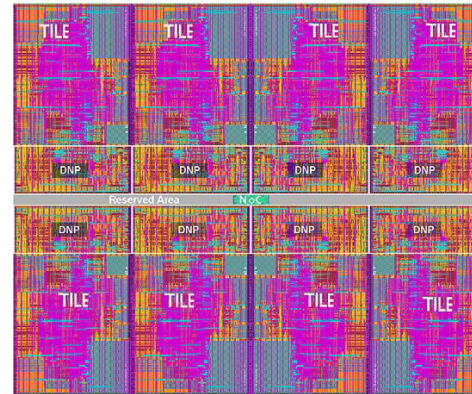


.. HW-SW architectures ..

Network on Chip (NoC) paradigm

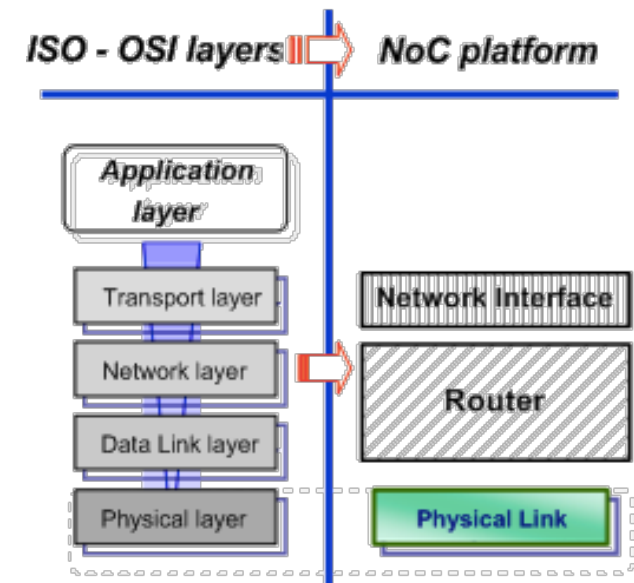
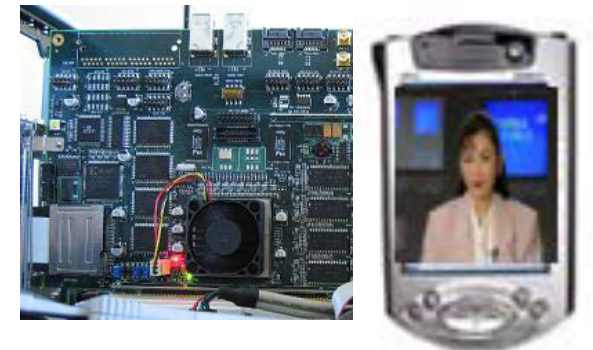
.. IEEE Trans. Computers, IEEE Trans. Circ & Syst.

8 patents on NI, Router, Link, metacompiler, ME



.. SoC design ..

.. prototyping..

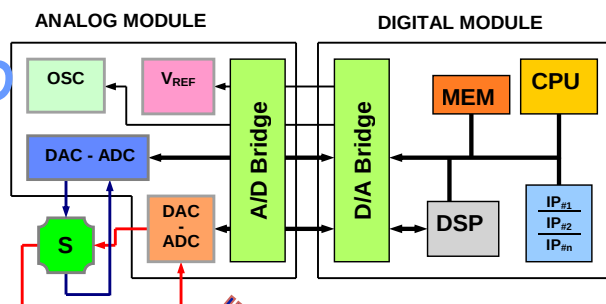




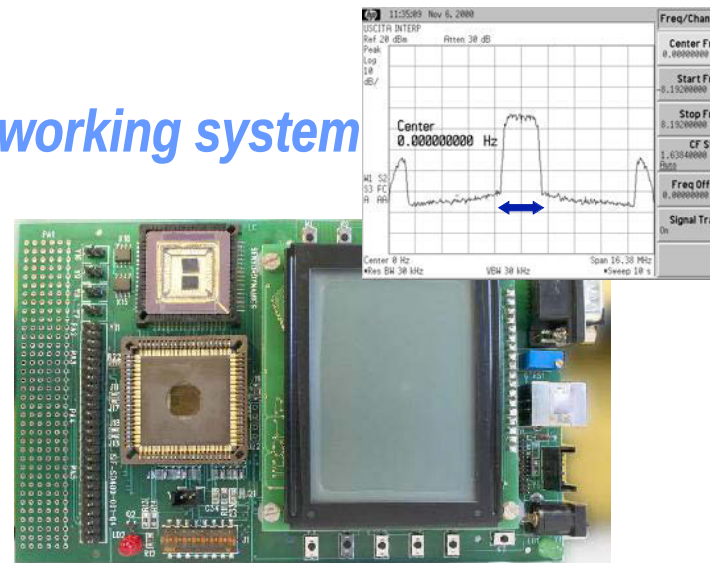
..to Sensor ACQ/DSP & Networking..

Intelligent Multi-Sensor InterFace

From mixed A-D architecture ..

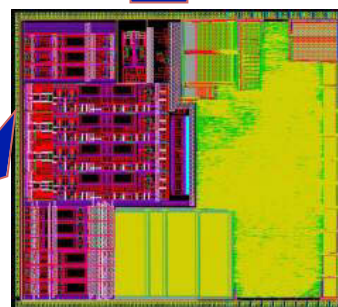


.. to working system



.. to silicon ..

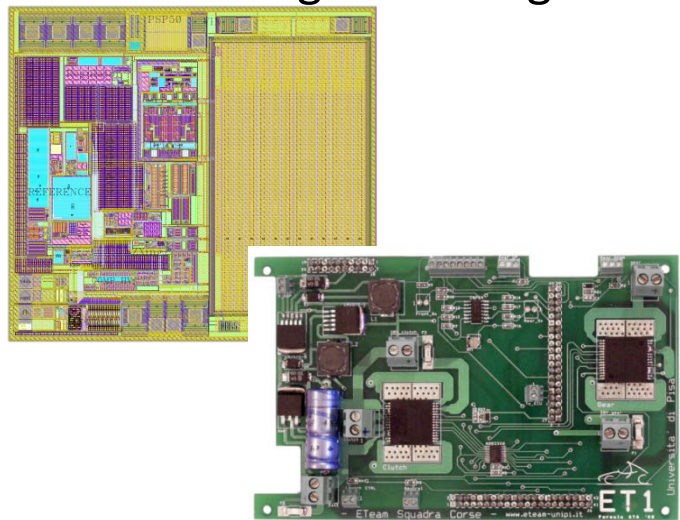
.. IEEE Trans. on - Industrial Electr., -on Instr & Meas. - on Aerospace and Electr. Syst,



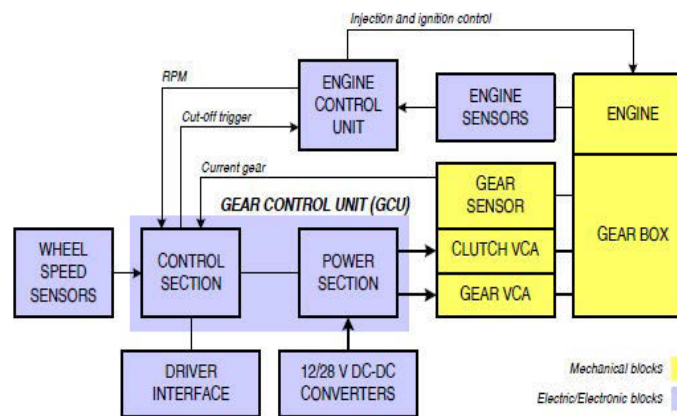


Embedded Mechatronic Ctrl & Smart Power

Digital control of Voice Coil Actuator for Robotized car gear management



E-LATCH for Advanced Mechatronic Door System



Multi-channel/Networked Power Supply for TLC & Networking Systems

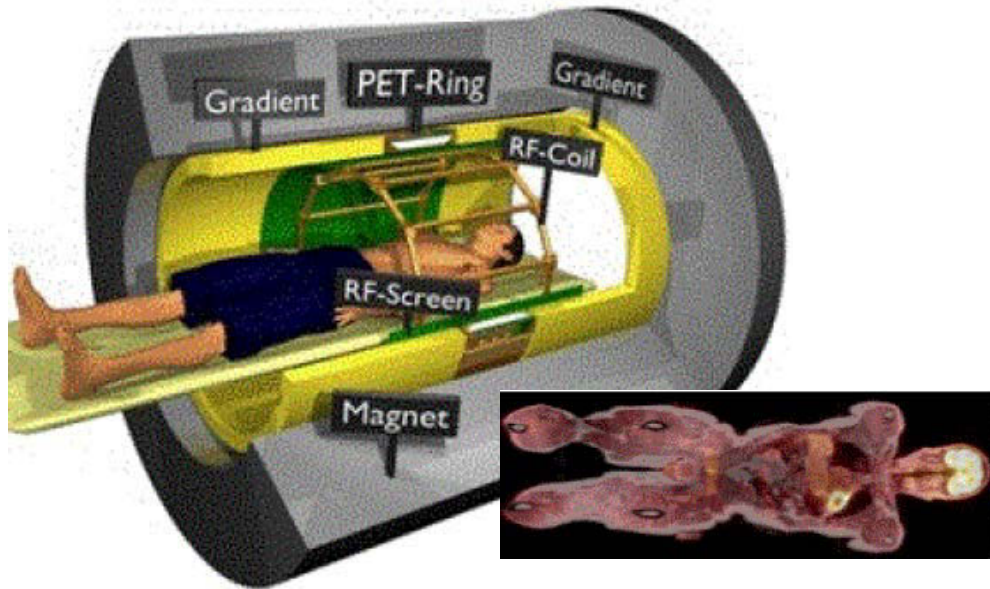
4 patents, IEEE Trans. on - Mechatronics, - Ind. Electr., - Power Electr.

Smart power for LED lighting, CAR alternator, DC/DC converter



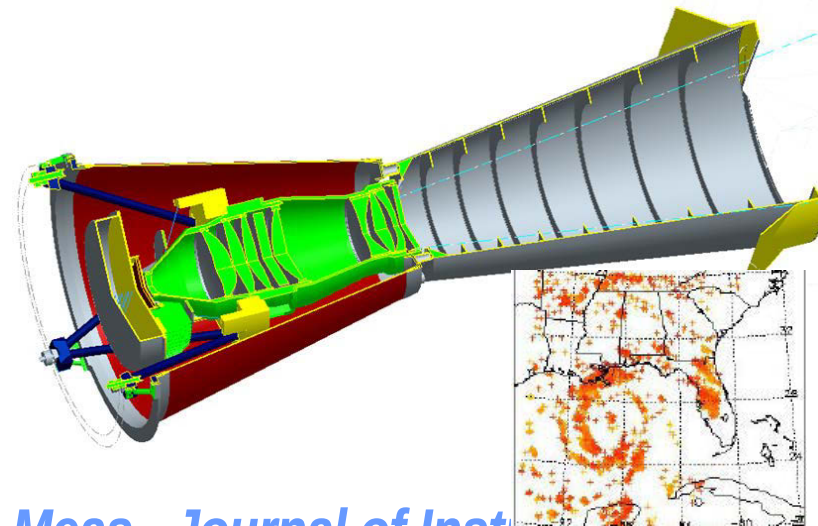
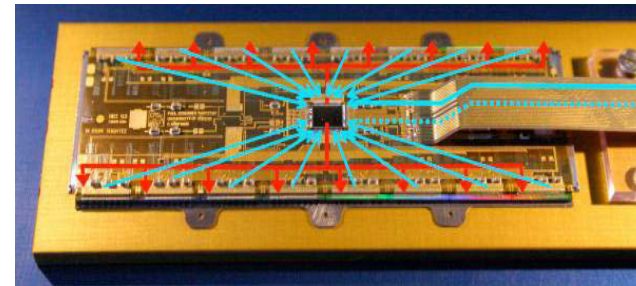
..and Complex Systems

SiPM front-end & TDC
for PET/MR Bio-Imaging



APS front-end, On-board data
handling & SpW networking for
Lightning Imager (METEOSAT 3G)

Intelligent Trackers for HEP



IEEE Trans. on – Nuclear Science, - Inst. & Meas., Journal of Instr.



Recent/On-going Projects in Tuscany

UAV Hyperspectral Smartcam -- FlyBY

LI for METEOSAT 3G -- Selex ES

ATHENIS 3D -- AMS

SIMPLE -- IDS & Intecs

ATENE -- GE Oil & Gas

AMDS -- MAGNA

STAR -- Intecs & Sitael

DSPACE -- Intecs & Sitael

EFESTO -- ISE

