

inAccess Networks

Microelectronics in Telecom Applications

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Company Profile

- **Founded in 2000 - Self financed**
- **Business Model: Telecom System Vendor**
- **Customers: European Telcos/Utilities with complex Telecom Needs**
- **Product focus: Convergence [Data/Voice/Control/Video]**
 - **Multi protocol Gateways / Controllers & Supporting Backend Platforms**
- **System Design & Development Activities:**
 - **Hardware, Microelectronics, DSP, Embedded Software, Application Software**
- **Size: 70 employees, 55 specialized engineers, 8.7MEUR/2006**
- **Founding Member, Hellenic Semiconductor Industry Association**



Multiplay Home Gateways for Telecoms & Utilities

- ◆ **MRG-300: Multiplay Service Gateways**



- ◆ **MRG-110-6: Multiprotocol Domotic Controllers**



- ◆ **MRG-110-5 / MDA-050: Domotic Adapters**



- ◆ **Availability: Branded or White Label OEM**

Product Roadmap



MDA-050

Domotic Adapters

2005: Ethernet, Zwave, WiFi 11b/g, V92, USB

2006: +UPnP, zigbee, LON, EIB, GPRS

2007: +Busing, HomeTronic, HomePlug AV



MRG-110-6

Domotic Gateways

2005: Linux 2.6, OSGi, Ethernet, USB, RS232

2006: +Busing, EIB, LON, UPnP, HomeTronic, GPRS

2007: +TR69, QoS, UPA, UMTS, HomePlug AV

2008: + zigbee



MRG-300

Service Gateways

2005: Linux 2.6, OSGi, Ethernet, Ethernet Switch, USB2.0, RS232, WiFi a/b/g/e, SD Flash Card

2006: +ADSL2/2+, SoftPBX, FXS, FXO, UPnP, QoS, IDE

2007: +TR69, UMTS, QoS, UPA, HomePlug AV

2008: +UWB, GPON, VDSL, HDTV

Site Controllers for Telecom & Energy

- ◆ Unmanned buildings / GSM-3G base-stations / Power Stations
- ◆ Massive Arrays of controllers with always-on connectivity
- ◆ Hundred Thousands of I/Os, Millions of control tags area-wide
- ◆ Main and Disaster Recovery Centers, Multiple Operators
- ◆ Applications:
 - Power generator monitoring, control and maintenance
 - Control of HVAC systems (chillers, boilers, fans, dampers, coils, etc)
 - Control of A/C units and group of A/Cs
 - Rectifiers, inverters, UPS and battery arrays monitoring
 - Lighting control, Electrical panel and consumption monitoring
 - Close control units (CCU) management, Drainage water control
 - Maintenance management
 - Energy management policies



Typical Mobile Telephone Site on building.

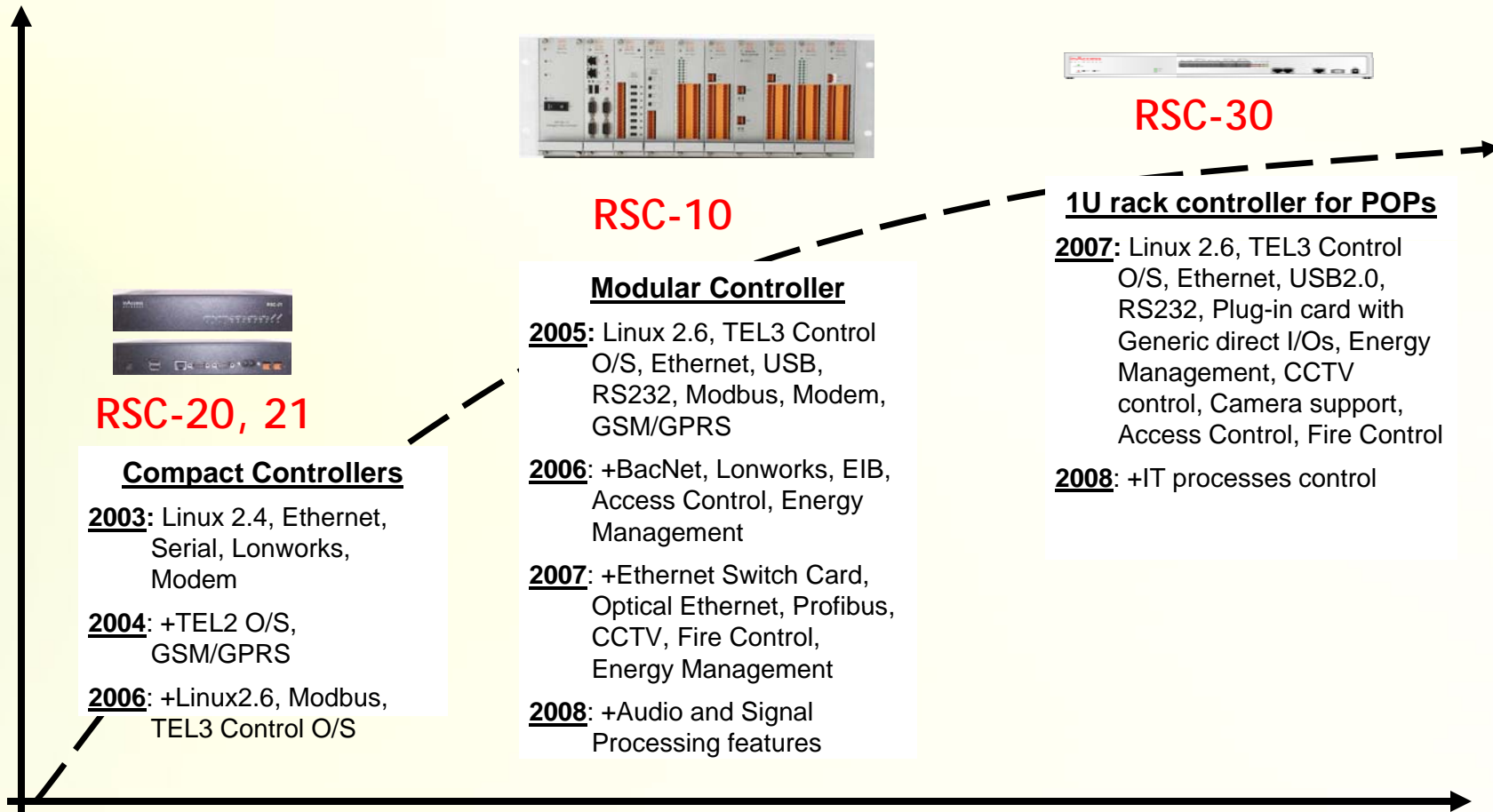


Typical Mobile Telephone Site on the ground



An ISO 9001:2000 Company

Site Controllers: Product portfolio

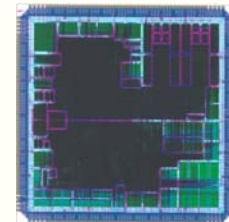


Role of Microelectronics in Telecom Products

- **Microelectronics design found in several areas of a product:**
 - **Glue logic for quick integration**
 - **Heavy processing blocks, e.g. encryption/decryption**
 - **Blocks with integrated IP, e.g. voice encoding algorithms**
- **Integration of complex functions in FGPA or Silicon is a key value-adding factor for a product**
 - **e.g. fast searching algorithms for deep packet inspection**
- **Integration in micro-scale enables wire-speed data processing**
 - **E.g. cell / packet switching elements, memory managers**

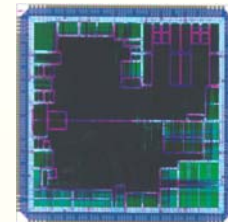
A focused example

- **Network Processors are the core of modern multiservice systems**
Typically contain:
 - One or more RISC cores
(system processing, driving peripherals)
 - One or more DSP cores (media processing)
 - Specialized IP blocks
 - prioritized handling of high speed interfaces
 - ensuring real-time access to events
 - wire-speed packet / cell classification
 - memory handling for queue management (QoS guarantees)
 - General IP cores
 - Encryption / Decryption (for VPNs)
 - Interfaces (I.e. gigabit-speeds)
 - implementation of various protocols (I.e. MAC)



Conclusion:

- Telecom sector offers a very wide chip application area
- Chip design, as almost everything:
 - Can be extremely cash-hungry if going for full product
 - Requires deep market understanding
 - Careful choice of FPGA, Structured ASIC, MPW Wafer, full Mask
- Given solid identification of a need, several models exist:
 - Specialized Design Services, IP block, Device, SiP partnerships
- Chip design is not exotic
 - It is possible even for a startup or university
 - From FPGA to Structured ASIC to MPW
 - With wide choice of education programmes and free / open source tools and cores
 - It can be commercially viable even in small volume
 - FPGA, Structured ASIC



Thank you

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