

Mobile Processors - Future Trends



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Introduction



Need of mobility:

- Phone
- Personal Computer
- Personal Information Manager
- MP3 player
- ...

Devices capable of:

- Handling digital audio
- Digital video
- Multimedia applications
- Wireless communication
- ...



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Mobile Platforms



- Mobile Computers
 - Laptops
 - Handhelds and PDAs (Personal Digital Assistant)
 - PalmOS
 - Windows PocketPC
 - Symbian
- Mobile Phones
- Other Devices
 - Digital Cameras
 - MP3 Players



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Challenges of Mobile Processors



- Power consumption
- Digital Signal Processing
- Peripherals Integration
- Multimedia Acceleration
- Code Density



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Challenges of Mobile Processors

- Power Consumption
 - Advanced Silicon Process
 - Split Power Supplies
 - Static Logic Design
 - Clock Gating
 - Frequency Scaling
- Peripherals Integration



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Challenges of Mobile Processors

- DSP(Digital Signal Processing)
 - Single-cycle multiply-accumulate capability
 - Specialized addressing modes
 - On-chip memory, and peripherals controllers
 - Specialized execution control
 - Several operations encoded in a single instruction
- Multimedia Acceleration
 - Media MIPS -> DSP Processors
- Code Density



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Vendors Approaches

- ARM11
 - The first implementation of the ARMv6 instruction set architecture
 - Targeted at portable and wireless applications, consumer, networking, and automotive applications
 - Starting at 350-500Mhz range, but aiming for 1Ghz.
 - Includes a set of media processing instructions
 - It includes new instructions to accelerate real-time performance and interrupt response.
 - In addition it is also possible to share data with other processors
 - ...



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Vendors Approaches

- Motorola DragonBall (MC68328)
 - It includes a LCD controller;
 - Implements features like Real time clock, Timers, UART;
 - Has a low-power operation mode that provides features like:
 - turning off unused peripherals;
 - reducing processor clock speed;
 - disabling the processor altogether;
 - or a combination of these;
 - Enhanced Peripheral support;



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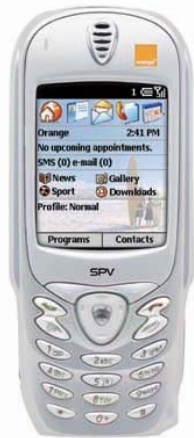
Conclusions

Need of mobility:

- Phone
- Personal Computer
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Convergence:

- Handheld
- Mobile Phones
- MP3 Players
- Personal Information Manager



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Conclusions



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The end...

Questions?



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