

XScale PXA250 robotics control board

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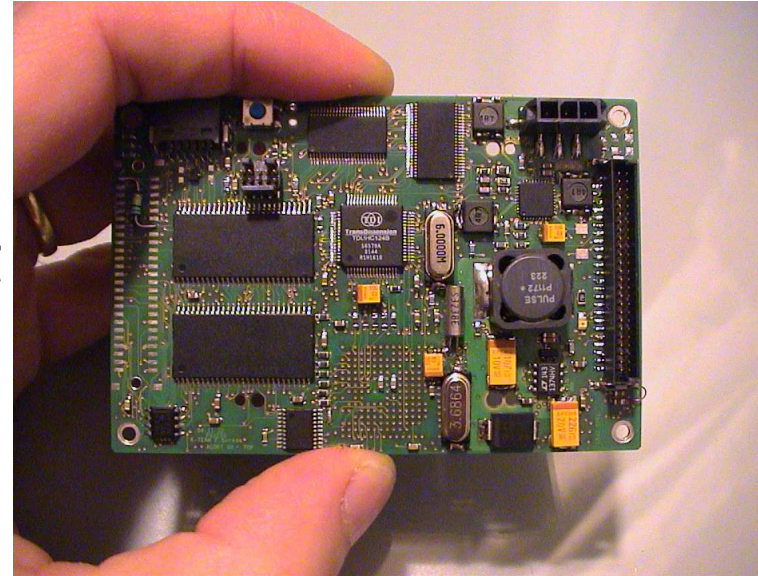
ASL 2

SwarmBot Project

17th July 2003



- Korebot processor board :
 - designed with K-Team
 - in collaboration with Julien Pilet and me (LAP I&C, diploma project)
- Software :
 - custom upload / debug tools (Jelie) and bootloader (Flaboot), by Julien Pilet and me
 - adapted Linux kernel (2.4.19) and distribution (familiar)

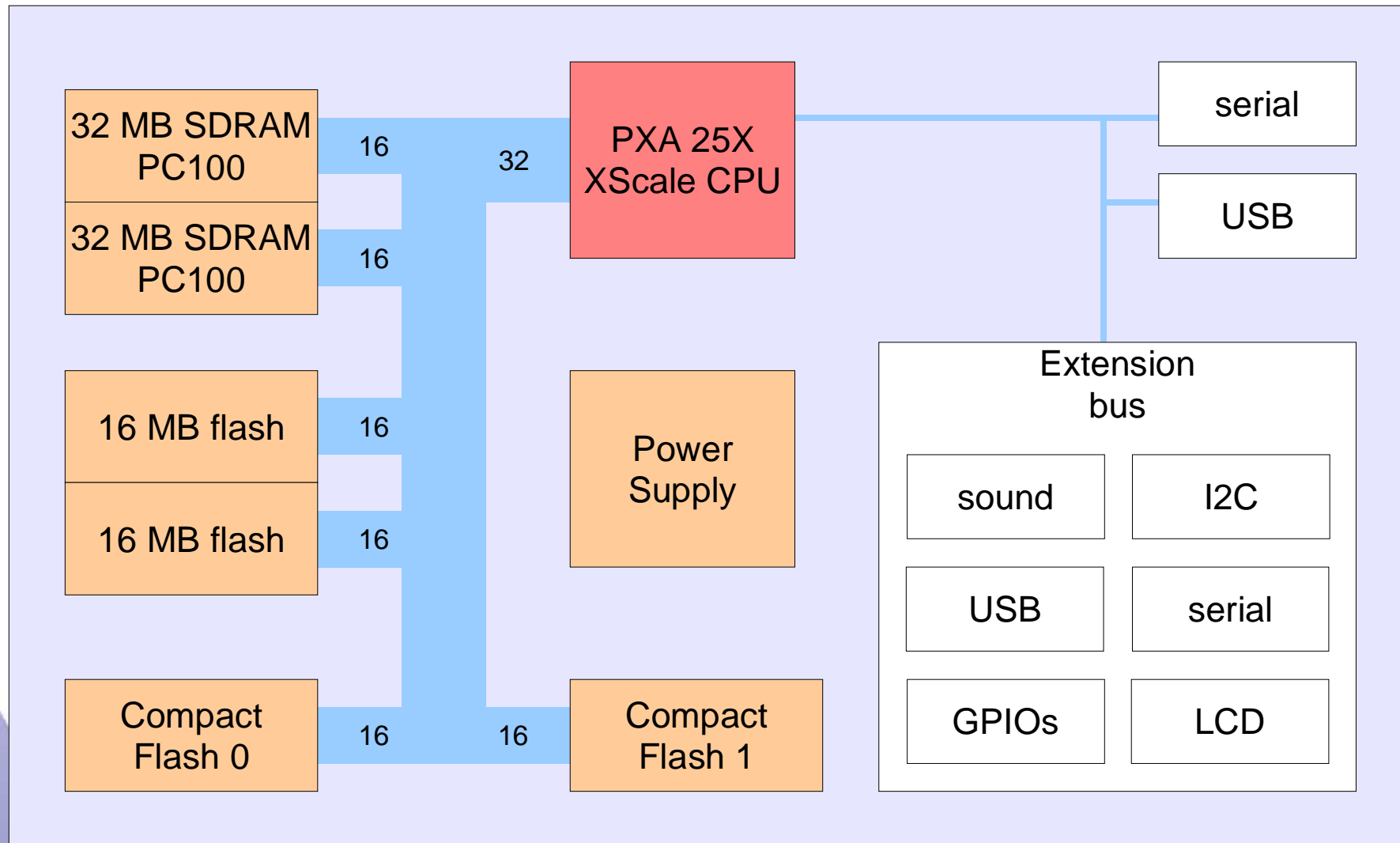


- Latest embedded 32 bits processors :
 - Low power consumption
 - High computing performances (integer) :
 - 400 BogoMIPS @ 400 Mhz
 - Desktop class computer equivalent with 5 years lag
 - Small size (BGA)
 - Cheap
- Big SDRAM
 - Standard PC100
- Large Flash



- It's not only free overkill, fast processors allow :
 - Multi-dimensional, high bandwidth sensors:
 - audio in/out
 - video in
 - more complex algorithms, bigger NN, ...
 - Debian/familiar GNU/Linux operating system
 - Same building tools as on PC :
 - gcc, gas, gdb, make
 - Complex peripherals :
 - wireless ethernet

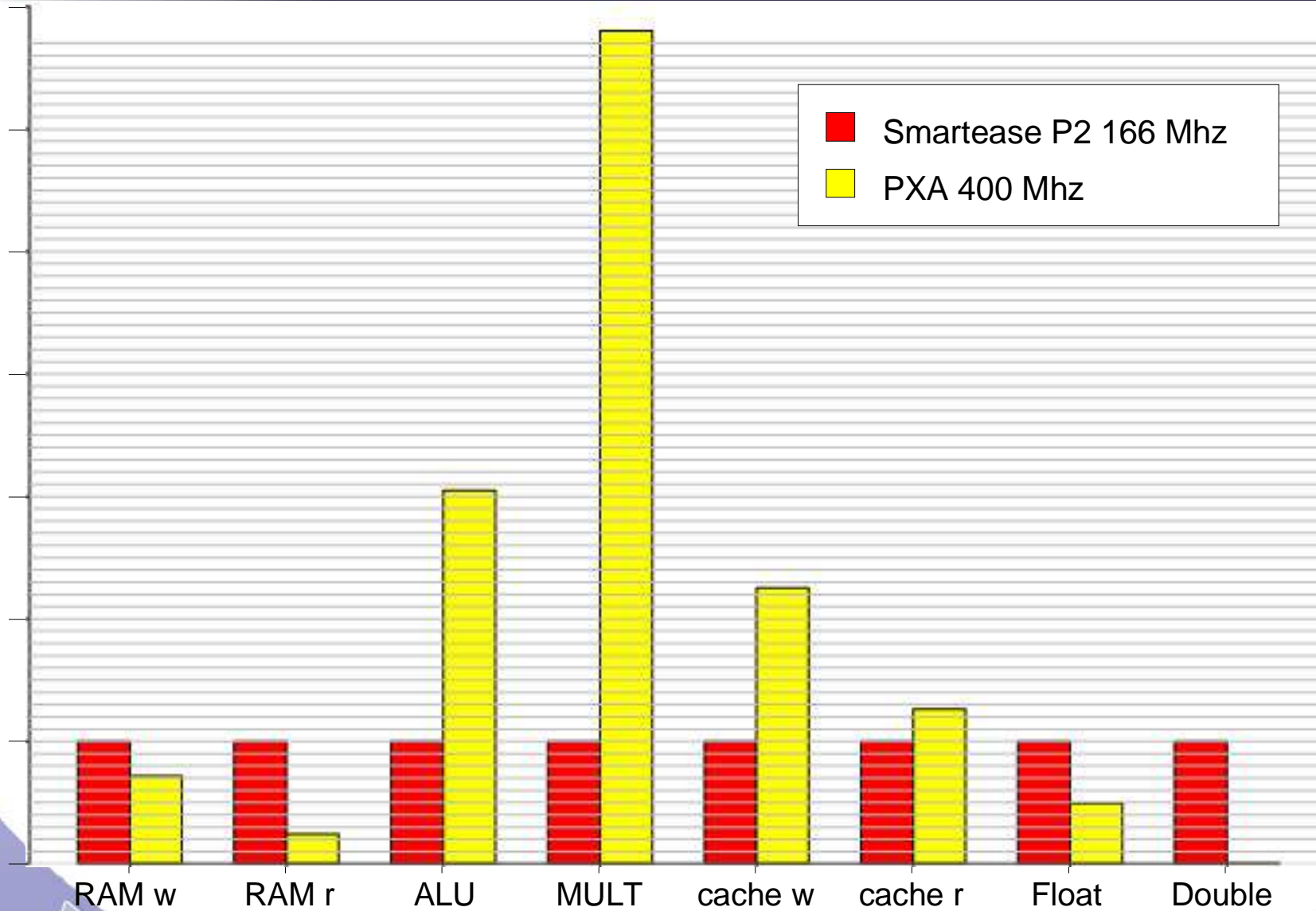




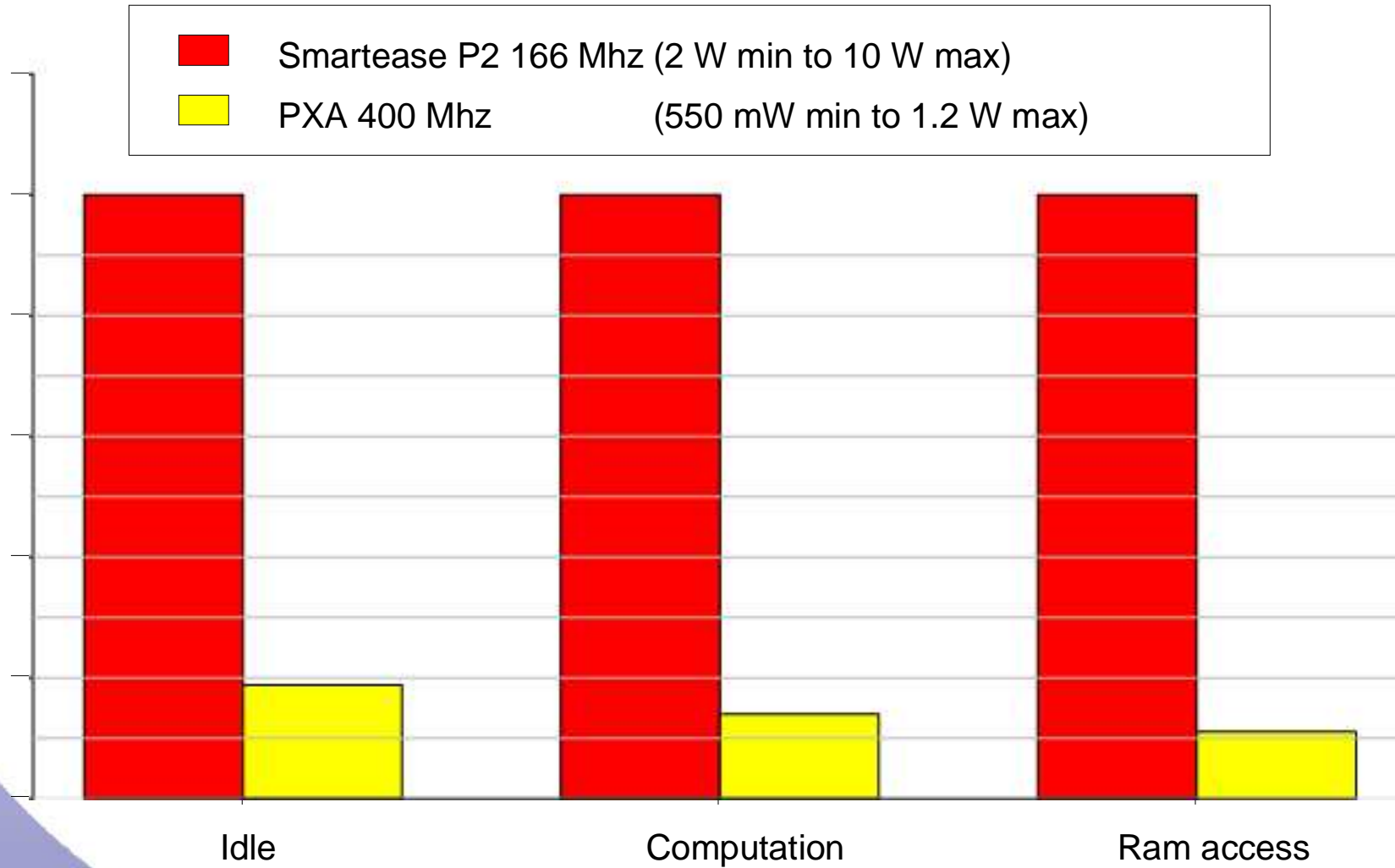
- Home-made bootloader and debug tools
- Linux kernel
- Debian-based, embedded optimised distribution (familiar from handhelds.org)
- Free software :
 - total control because source access
 - freely redistribuable
 - dynamic community
 - interesting to develop, long term view
 - free (as in free beer)

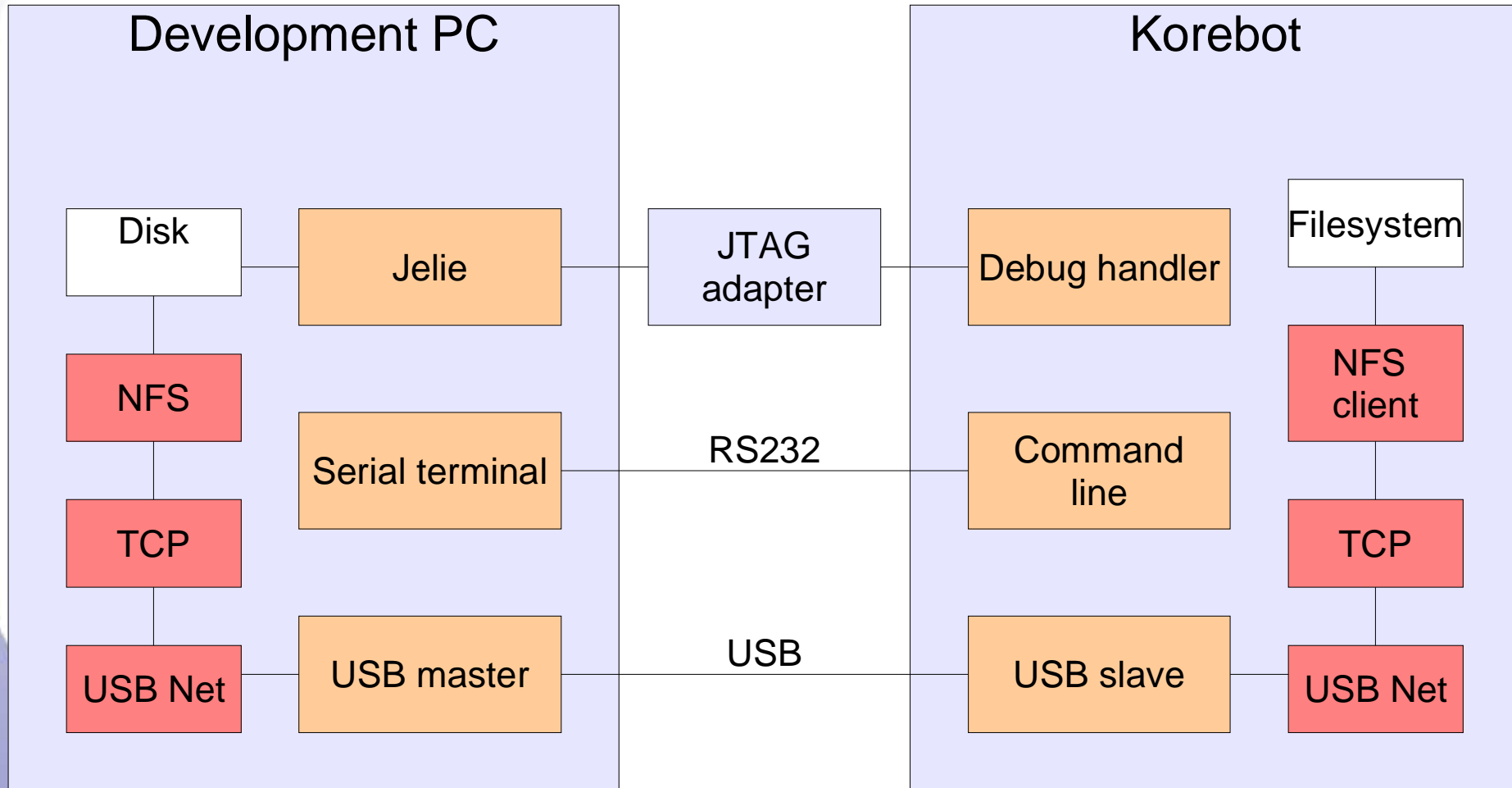


Speed comparaison



Power consumption comparaison

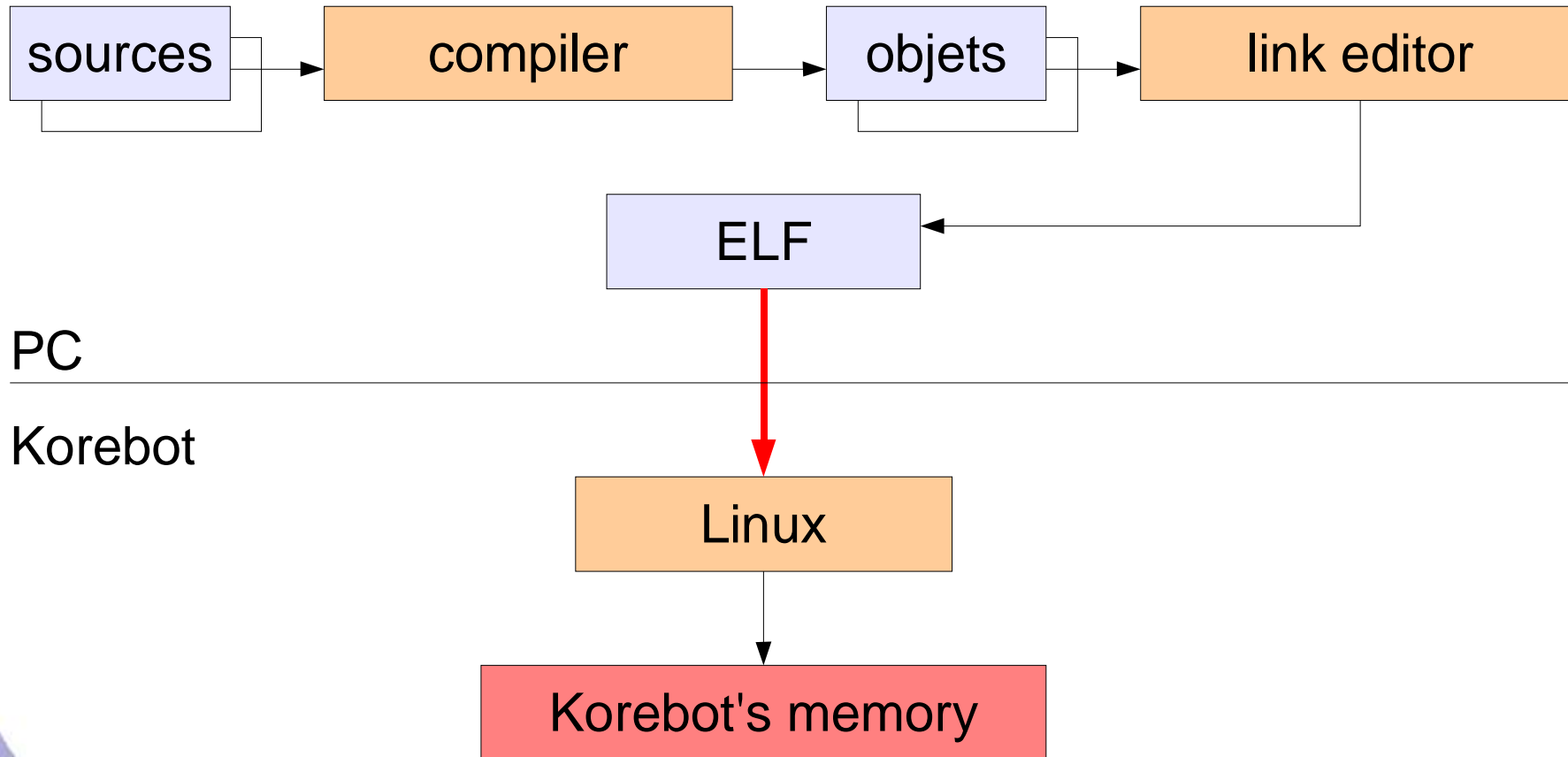




Any question ?



Writing and loading a program



PC

Korebot

Programs

files

