



# Microteam

ELECTRONICS • AUTOMATION • ROBOTICS • AUTOMOTIVE



## THE BEAUTY OF IT

The Bedrock concept combines the ease of application development in the familiar Linux environment with the real-time capabilities of an independent co-processor or an extremely fast FPGA chip.

## THE APPLICATION IS THERE

The Linux processor of the Bedrock is software compatible with the BeagleBone Black development card. That means a lot of on-line application examples and community support from third-party developers. But it's not a dev card: it is for use in the harsh real world.

## WHAT'S REAL TIME?

We claim there's no such thing as real-time Linux. In our understanding, real-time takes place in hardware. In an FPGA (Field Programmable Logic Array), all independent functions are truly parallelized. Some examples that have been realized by Microteam using FPGA chips in the 5 € to 40 € price range:

- Fast Fourier Transform, multiplication and inverse FFT in microseconds
- Data acquisition at 400 Mbps per channel over several channels
- Serial buses with hard timing requirements

## SOFT REAL TIME

In some cases soft real time is enough. Offloading of general-purpose I/O, analogue measurements and serial buses like CAN or RS485 to a 32-bit co-processor lets these functions to be served independent of the workload of the Linux host processor.



## WHAT WE DO

Some examples of customer products developed by Microteam utilizing the concept of a host processor and a fast co-processor or an FPGA:

- **An acoustic sensor network:** A co-processor receives synchronized data from some 30 microphone units and streams the timestamped audio packets to a Linux application processor for analysis
- **A machine vision camera:** A housekeeping processor provides the UI and monitoring while the highly synchronous multi-gigabit data stream flows through an image processing FPGA
- **A radio control hub:** A co-processor generates the on-off keying modulation for a short-range radio while the Linux application processor handles the user interface and the high-level protocols. As a consumer product, the unit price is exceptionally low.

## APPLICATION DEVELOPMENT

### LINUX

From the developer's point of view, the Linux processor of the Bedrock concept is like the BeagleBone Black. Development tools and community support are widely available.

### CO-PROCESSOR


The "soft" real time co-processor is programmed using embedded C.

### FPGA

We recommend you to let us do the FPGA development. For customers proficient with FPGAs, we offer our unique toolset for rapid algorithm development for FPGA chips. The toolset offers a fast-forward way for modelling and simulation before even launching the VHDL synthesis tools.

## WHAT'S YOUR APPLICATION?

Microteam has wide experience in real-time signal processing as well as in development of embedded systems since 1981. For more information about references and prices please contact [sales@microteam.fi](mailto:sales@microteam.fi)



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