

Parallel Image Processing on the Texas Instruments Multiprocessor System¹⁾

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Abstract. In the paper the application of the Texas Instruments multiprocessor chip TMS320C80 for parallel image processing is described. In real-time implementations of image processing algorithms the performance time is a critical parameter, so very often multiprocessor solutions must be used. The TMS320C80 is composed of one master RISC processor and four parallel DSP processors optimised for efficient image processing. Because these processors are quite loosely coupled and they communicate through common memory, it is possible to implement for this system many different types of multiprocessor architecture. This paper presents the results obtained during the implementation of the chosen image processing algorithms for different architectures such as SIMD, MIMD, MISD and pipeline structure. Attention is paid to the problem of matching the image processing algorithm to the proper multiprocessor architecture in order for the computation time to be minimised.

Key words: image processing, parallel computing, computer architecture, multiprocessor systems

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