

A Sub-Scalar Approach to the MIPS Architecture

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Abstract : The continuous researches in the field of computer architecture basically aims at accelerating the computational speed and to gain enhanced performance. In this era, the superscalar, sub-scalar concept has not gained enough attention for improving the computation performance. In this paper, we have presented a sub-scalar approach to utilize the parallelism present with in the data while processing. The main idea is to split the data into individual smaller entities and these entities are processed with a defined known set of instructions. This sub-scalar approach to the MIPS architecture can bring out significant improvement in the computational speedup. MIPS-I is the basic design taken in consideration for the development of sub-scalar MIPS64 for increasing the instruction level parallelism (ILP) and resource utilization.

Keywords : dataword, MIPS, processor, sub-scalar

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