

MediaBench II Video: Expediting the Next Generation of Video Systems Research

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The first step towards the design of video processors and video systems is to achieve an accurate understanding of the major video applications, including not only the fundamentals of the many video compression standards, but also the workload characteristics of those applications. Introduced in 1997, the MediaBench benchmark suite provided the first set of full application-level benchmarks for studying video processing characteristics, and has consequently enabled significant research in computer architecture and compiler research for multimedia systems. To expedite the next generation of systems research, the MediaBench Consortium is developing the MediaBench II benchmark suite, incorporating benchmarks from the latest multimedia technologies, and providing both a single composite benchmark suite as well as separate benchmark suites for each area of multimedia. In the area of video, MediaBench II Video includes both the popular mainstream video compression standards, such as Motion-JPEG, H.263, and MPEG-2, and the more recent next-generation standards, including MPEG-4, Motion-JPEG2000, and H.264. This paper introduces MediaBench II Video and provides a comprehensive workload evaluation of its major processing characteristics.