Foreword

Contemporary programming paradigms and workloads are different in many respects from traditional workloads and their detailed characterization is extremely important to guide design of future computer architectures. The collection of papers presented here is derived from the contents of the First Workshop on Workload Characterization held in Dallas, Texas on November 29, 1998, in conjunction with Micro-31. This workshop series has been intended to bring together research in this area, encourage further active research in the area, and discuss future directions.

Fifteen interesting papers on various aspects of workload characterization are presented here. Characterization of Java, graphics, E-commerce, web server, data mining, scientific, engineering and desktop personal computing workloads are included. These workloads were characterized on many state-of-the-art microprocessors and processor, memory, and I/O characteristics studied. While majority of the papers perform platform dependent workload characterization, an introductory paper explaining the need for platform independent workload characterization is included in Chapter 1. Such intrinsic program characterization can lead to a program behavior model which will be instrumental in processor performance evaluation, micro-architecture tuning, creation of effective benchmark suites, etc.

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We hope that this work triggers further research in workload characterization and assists computer performance evaluation and benchmarking in a creative manner.

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