License Agreements for the UTDSP Benchmark Suite
(Revision 2)

Preamble

The intent of this document is to state the conditions under which the UTDSP Benchmark Suite may be used, such that the LICENSOR maintains some semblance of protection over the development of the package, while giving users the right to use and make reasonable modifications in a more or less customary fashion.

This document contains research and commercial license agreements for the University of Toronto Digital Signal Processing (UTDSP) Benchmark Suite.

Overview

The UTDSP Benchmark Suite was created in 1992 to evaluate the quality of code generated by a high-level language (such as C) compiler targeting a programmable digital signal processor (DSP). This evaluation was used to drive the development of specific compiler optimizations to improve the quality of the generated code and to modify the architecture of the target processor to simplify the compiler's task.

At that time, DSP applications were written in the assembly language of the target processor, making it necessary for us to write the applications ourselves in C.

The benchmark suite is divided into two classes of programs: kernels and applications. DSP kernels are simply small code fragments that represent important calculations in DSP applications. Examples of DSP kernels are: filters of various kinds, fast Fourier transform, matrix multiply, etc. DSP applications, on the other hand, are entire programs that would be executed on a DSP in a commercial product. Examples of DSP applications are: linear predictive coding, image compression, an implementation of the G.721 modem protocol, etc.

For each kernel and application, the suite provides several versions written in different coding styles. All versions for a particular kernel or application provide the same functionality. The coding styles vary in the use of pointer or array notation and software pipelining. The purpose of having several versions is to evaluate the ability of a compiler to generate comparable code for all versions. For example, code generated for the array-based version of a benchmark should execute as fast as code generated for the pointer-based version.

Because the primary emphasis of our work is on the evaluation of compiler optimizations and architectural features and not on the robustness of our benchmark suite, the program code is not high-quality. We do not support the code in the benchmark suite, but we will attempt to include in future distributions any bug fixes that are brought to our attention.

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Contact Information

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LICENSOR

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LICENSEE (please print or type)

Signature: ______________________________

Name
(print or type): ______________________________

Title: ______________________________

Organization: ______________________________

Address: ______________________________

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Date: ______________________________