C compilers and development tools simplify DSP assembly-language programming

N Manjunath  - January 21, 1999
Systems, it is better to adopt C.

Stone maintains that for applications that are based on a standard, such as a speech coder, it's easier to justify optimizations, help move HLL programming across the efficiency spectrum.

8. Go to 6.

7. Optimize ASM.

6. Verify ASM.

5. Write ASM.

4. Verify assembly in system.

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3. Other possibilities include writing in other languages that are interpretable by the end application, such as C++, or using a hybrid of languages.

The compiler incorporates four levels of state-of-the-art generic and target-specific optimizations. The level of associated with writing code for a pipelined processor (of writing low-level code. An Assembly Optimizer, which performs many compilerlike optimizations, processes linear

concatenating n short instructions, controls its functional units. In the C6x, the short instructions are 32 bits wide, and

memory accesses.

You can further optimize and debug the C compiler-generated assembly code by using development tools supplied

Depending on the application and time-to-market considerations, you have to proceed carefully with your DSP

programming. Coding DSP algorithms is mathematically intensive. Mapping those models onto a DSP's architecture is

a skill unique to DSP assembly programmers.

Secondly, DSP-assembly programming also requires that you understand instruction stalls. Instruction

considerations for selecting a DSP processor, ADSP-2115 Vs. TMS320C5x, AN-393, Analog Devices.

You can use the DMA controller as often as possible.

Carefully plan which registers to use for certain operands.

Algebraic: ADSP-21060 instructions to find the maximum of two operands:

Mnemonics: TMS320C40 instructions to find the maximum of two operands:

CMPF

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