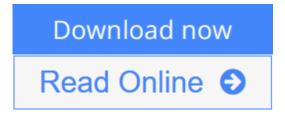


### Programming and Application of a DSP to **Control and Regulate Power Electronic** Converters: Programming in C++

By Baris Bagci



Programming and Application of a DSP to Control and Regulate Power **Electronic Converters: Programming in C++** By Baris Bagci

The purpose of this project has been to study, operate and program the 32-bit 150MIPS TMS320F2812 DSP developed by Texas Instruments Inc. In addition, it has also been a goal to implement fast estimation techniques for control of resonant converters. For this purpose, PWM signals that are generated using this DSP are used. The demands on the system and the hardware to solve the problem were already decided when I started the work. The algorithms were programmed in C/C++ language, compiled, debugged and transferred to the DSP development board in a compiling and simulation tool (downloader), called CCS (Code Composer Studio v2), also provided by Texas Instruments. In the first chapters of this study I give general information about control systems, digital signal processors, digital signal processing and the DSP used in this work. The following chapters tell about PWM, how to configure the PWM outputs and some examples related with PWM signals are given. After a short review of series resonant converters, I presented the last example implemented in this project. I conclude with a summary and provide some hints of future work.



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About the Author

Baris Bagci earned his BSc degree in Electrical and Electronic Engineering in 2001 and his MSc degree in Electrical Engineering in 2003. Since then he worked in different areas from automotive to product testing, renewable energy technologies and high voltage measurement technologies. Having lived in Turkey, Germany and Japan, since 2005 he calls Hong Kong his home. Currently he is active in the electric power industry, providing consultancy services to power utilities across Asia Pacific.

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