Audio Weaver

Development Environment

Overview

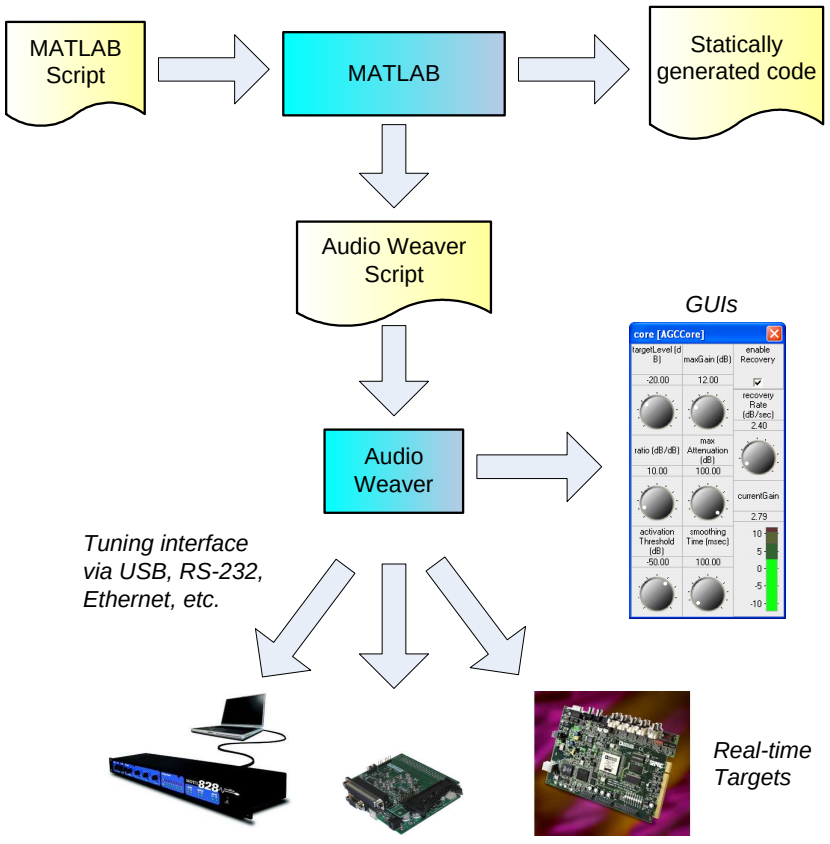
The Audio Weaver from DSP Concepts is an environment for developing optimized embedded audio software for Analog Devices SHARC and Blackfin processors. It codifies years of audio product development experience and enables algorithm and product developers to more quickly and efficiently develop products and technology. The Audio Weaver is suitable for the entire lifecycle of an algorithm, from basic research, to optimization and productization, integration into end products, and ongoing legacy support.

The Audio Weaver differs from other algorithm design tools in that is it focused specifically on audio and geared toward the needs of product developers rather than researchers. The Audio Weaver automates many of the mundane tasks associated with developing embedded products and allows the designer to focus on adding sophisticated functionality or reducing time-to-market.

Cross Platform

Much of the difficulty associated with developing embedded algorithms arises from the limitations imposed by the development environment. By employing a cross-platform approach, algorithms can be prototyped in the feature rich and friendly PC environment and then later migrated to the SHARC or Blackfin processor. This minimizes overall development time and enables many of the difficult algorithmic issues to be addressed up front.

Audio Weaver functionality is enabled using MATLAB. Modules and subsystems are designed using an intuitive sequence of MATLAB commands. Systems can be designed, built, tuned, tested, and profiled - all from within MATLAB. This script-based language lends itself to automation throughout the design process and also enables MATLAB's vast library of signal processing design functions to be leveraged.



Features

- Full Hierarchy
- Generates Optimized Code
- Optimized Audio Module Library
- Cross Platform
- Native PC Execution
- Script-based Design
- Real-time Tuning
- User Interfaces
- Multirate Processing
- MIPs and Memory Profiling
- Automated Regression Testing
- Time and Frequency Domain Processing
- Suitable for High Volume Products

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Optimized Audio Module Library

The Audio Weaver includes a large library of audio specific processing functions: filters, scalers, mixers, delays, limiters, etc. These low-level modules can be combined into higher level subsystems to provide increased functionality. Most audio modules are designed to operate on interleaved audio channels allowing mono, stereo, and 5.1 signals to be supported in a natural manner. Some modules incorporate built-in smoothing on a sample-by-sample or block-by-block basis yielding "clickless" operation.

Hardware Targets

The Audio Weaver supports the following hardware targets:

- Native PC execution utilizing the Windows audio system. The real-time audio processing interfaces to multichannel sound cards allowing for more than just stereo input and output.
- Analog Devices 21369 EZ-KIT. Provides 2 in and 8 out analog I/O at 48 kHz. Tuning is via RS-232.
- Danville dspstak 21369 – Provides 8 in and 16 out analog I/O at 48 kHz. Tuning is via RS-232 or USB.
- Danville crossover board – Provides 2 in and 4 out analog I/O at up to 192 kHz with unbalanced inputs. (Or 1 input with balanced signals). USB tuning interface.
- Analog Devices BF533 EZ-KIT. Provides 4 in and 6 out analog I/O at 48 kHz. Tuning is via high-speed USB. Coming Soon!
- Analog Devices BF537 EZ-KIT. Provides 2 in and 2 out analog I/O at 48 kHz. Tuning is via RS-232. Coming Soon!

Pricing and Availability

A free evaluation version of the Audio Weaver can be downloaded from www.dspconcepts.com. This version supports native PC execution. All Audio Weaver functionality is enabled. MATLAB release 2006 or later is required.

Audio Weaver Developer is priced at $8,000 and allows custom audio modules to be developed in C or Assembly. Audio Weaver Developer requires VisualDSP++ and an emulator for SHARC or Blackfin module development, and Microsoft VisualStudio 2003 for development on the PC. The price includes 1 year of software updates and support. Software maintenance can be reviewed at a cost of 20% of the then current price of the Audio Weaver Developer.

Audio Weaver Production Licenses are available for developers that want to include Audio Weaver libraries into their end products. Contact DSP Concepts for pricing details.

Consulting Services

DSP Concepts provides a wide range of consulting services to customize the Audio Weaver to fit your particular product or application:

- Audio system design
- Audio module development
- Porting to other hardware platforms
- System integration and optimization

Pricing depends upon the scope of the project. Please contact DSP Concepts to discuss your particular requirements.

Contact

DSP Concepts, LLC is a leading provider of audio development tools and services. In addition to the Audio Weaver, DSP Concepts provides consulting services in the areas of algorithm prototyping, optimization, porting, and integration. For more information, visit our website at www.dspconcepts.com.