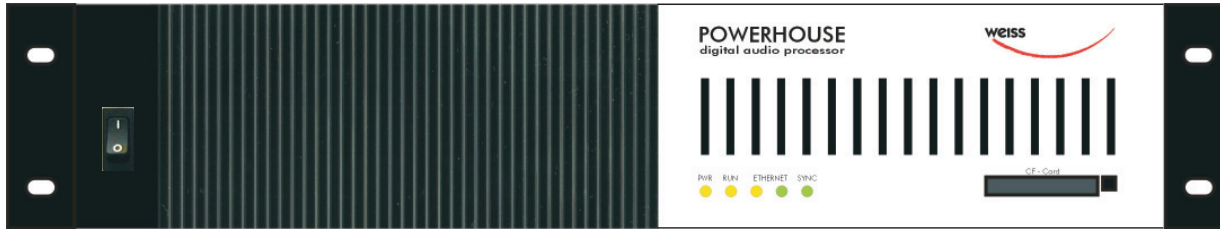


POWERHOUSE digital audio processor

weiss



Preliminary information on a current design project at Weiss Engineering Ltd.

Overview

The Powerhouse is a "black box" type universal digital signal processor for audio. Software is downloaded via Ethernet from a host computer. Control of the Powerhouse is also done via the host computer. The host computer typically is a PC or Mac, but can also be a dedicated remote control connected via Ethernet, RS232 or MIDI.

The DSP power and memory capacity of the Powerhouse allows for all kinds of signal processing tasks, including multichannel for surround and outboard, live applications, fast convolution, high sampling rate processing for mastering etc.

Hardware

- Modular DSP configuration from 2 up to 10 ADSP21161 Sharc processors
- 19 inch / 2HE frame
- Number / type of DSPs can be changed due to the modular design
- 32 bit controller for interface between Ethernet and DSPs
- Large audio RAM (total of 80 Msamples of RAM)
- RS232 / MIDI for standalone remote control connection (no host computer required)

- 4 slots for audio I/O interface cards. Formats like AES/EBU, analog, Firewire etc. are supported
- CF card on frontpanel for standalone applications
- extensive sync source selection (internal / external / audio I/O)

DSP-Block

There are up to 5 DSP modules in a Powerhouse unit, each consisting of 2 DSP chips and 16MWord of RAM. Four of these modules connect to the four audio I/O interfaces.

The ten DSP chips are connected in a loop via the "link port" connections of the DSP. This allows for highspeed data interchange between DSPs, required for multiprocessing. The DSP modules are exchangeable allowing for easy DSP power upgrade and avoiding obsolescence.

Internal Host Processor

A Motorola Coldfire type, 32 Bit processor with integrated Ethernet controls the DSP array and interfaces to the external controller.

Audio I/O

Up to four interface cards can be plugged in

on the back of the Powerhouse unit.

The first interface available will be an 8 channel in / 8 channel out AES/EBU card. Others to follow include analog and firewire.

Synchronisation

Several synchronization sources can be selected:

- One of the four input interfaces
- External sync via AES/EBU
- External sync via Wordclock
- Internal sync (44.1 / 48 / 88.2 / 96 / 176.4 / 192)

The sampling rate is not restricted to standard rates. The input / output interfaces dictate the maximum sampling rate.

Frontpanel / Backpanel elements

Frontpanel: Power Switch, Power LED, Sync locked LED, Status (running) LED, Ethernet LEDs, CF card

Backpanel: Power in, 4 Interface panels, AES sync in, AES sync through, Wordsync in, Wordsync through, MIDI in / out, 15 pin DSUB for RS232 and power.

How does the Powerhouse compare with the Weiss Gambit Series Equalizer and Dynamics units?

The Gambit Series Equalizer and Dynamics units (EQ1 and DS1) are two channel units with dedicated functions and ergonomically optimized user interfaces. EQ1 and DS1 do not need a computer to operate. The Powerhouse represents a plug-in philosophy while the Gambit Series units are standalone type equipment.

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