

EQ1™

Triple Floating Point DSP with balanced audio I/O

Texas Instruments multi DSP audio development platform



Momentum Data Systems EQ1 development platform is intended for developers needing a general purpose hardware environment for developing systems using Texas Instruments Performance Audio Framework (PA/F).

Input can be either from 12 ADCs, from SPDIF, or from HDMI (up to 8 channels of PCM audio).

Three 456 MHz DA8xx processors are provided. All inputs connect to a DA830 device, which includes an ARM core running Linux. The output of the DA830 is connected to two DA808 DSPs in parallel. 12 audio channels (6 I²S data lines) are passed between the processors. Each DA808 is connected to 12 DACs to provide a total of 24 outputs. More outputs than inputs are provided for cases where electronic crossovers or multispeaker sound field synthesis type algorithms need to be developed; these type of algorithms have more outputs than inputs.

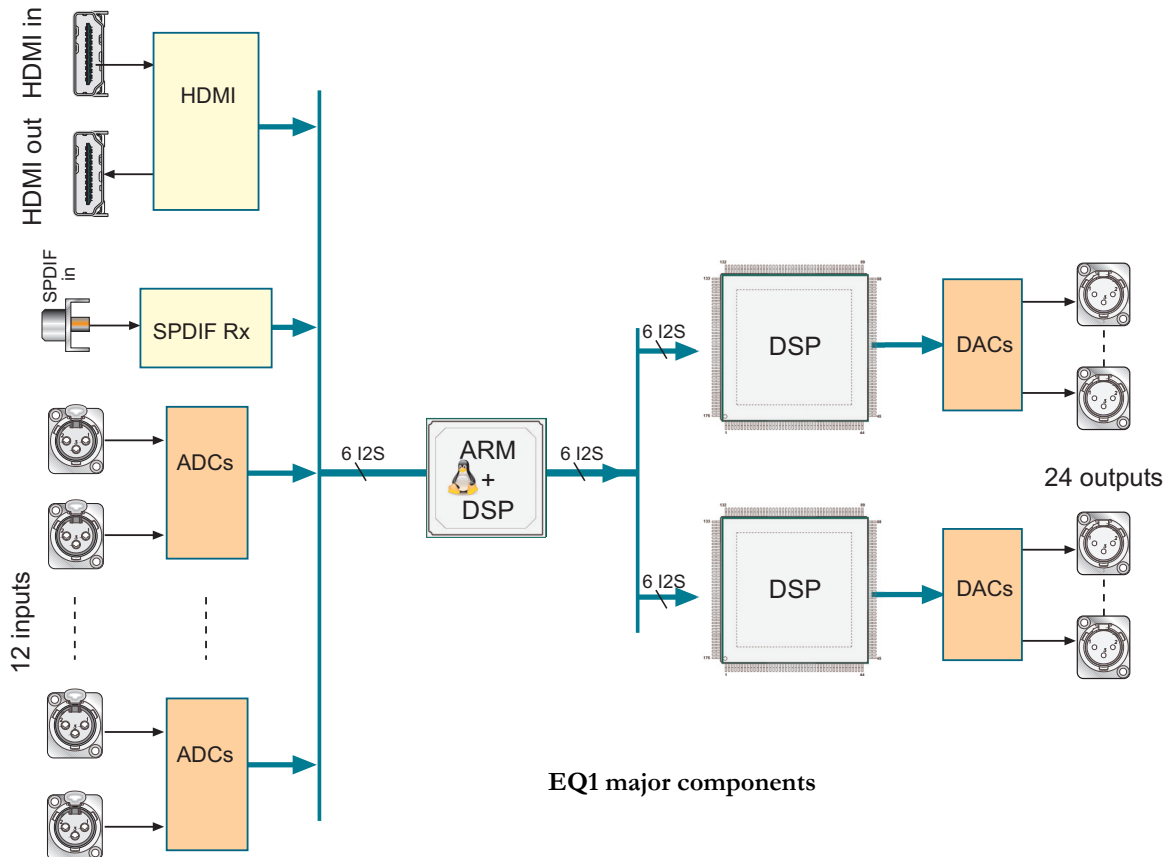
Host features

The DA830 is intended to run Linux on the ARM processor. Software to control program loading into the DA830's DSPs is included, The two DA808 devices normally boot from SPI flash, which can be reprogrammed from the ARM/Linux host.

The DA830 provides two serial ports and an ethernet connection for development. A 5 pin header provides access to the DA830's USB ports and can be connected to a PC bulk-head style USB jack (not included).

HDMI input/output

MDS' HSR-1 HDMI/HDCP repeater card is included in the system so that audio can be fed to the system directly from digital audio sources. PCM data is supported for direct processing, 2 to 8 channels, at up to 192 kHz sample rate. Any valid compressed audio bitstream (excluding DSD) can be handled with appropriate decoder software running on the DSPs.



EQ1 major components

Software Development

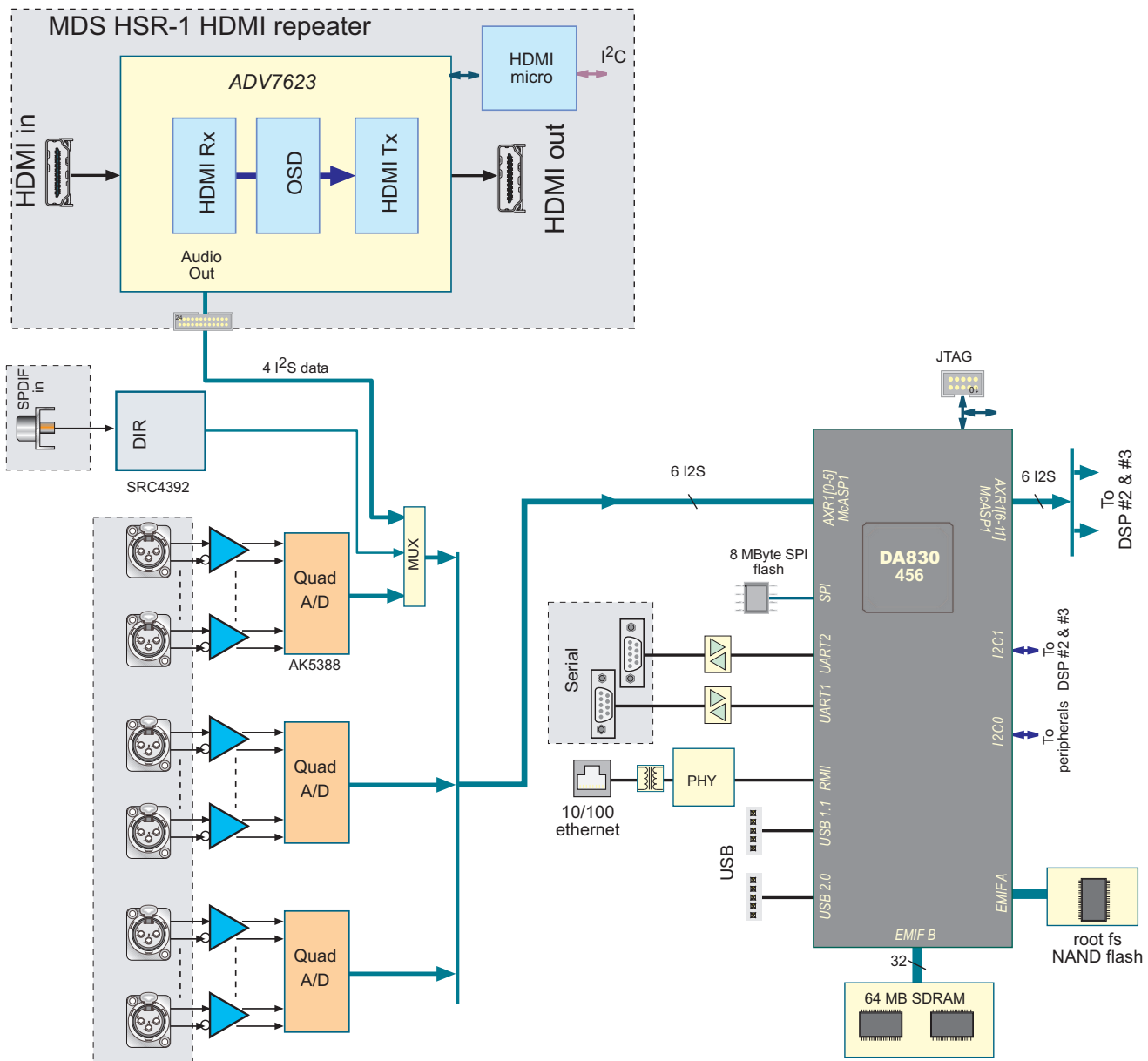
The EQ1 is intended for developers that are familiar with TI's PA/F and have a specific need to develop software with it. The user should be familiar with the use of TI's CCS and PA/F SDK on the DA830 EVM before using this platform.

The system is provided with a basic audio pass-through example that is built and run using PA/F.

For more information please see: http://processors.wiki.ti.com/index.php/Overview_of_DA8xx_SDK_Getting_Started_Guide

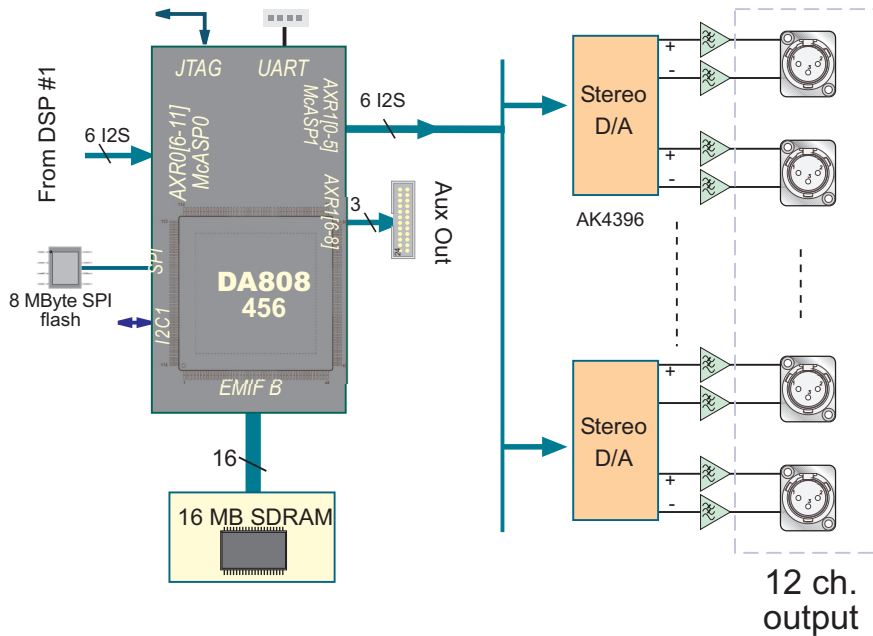
The software supplied by MDS includes the AvCtrlLib software running on the DA830 ARM (Linux) core. This

library wraps the low level Alpha Messaging Protocol used by PA/F. It also provides a control path to DSP 2/3 via I2C. The example program also support audio extraction from the HDMI card.



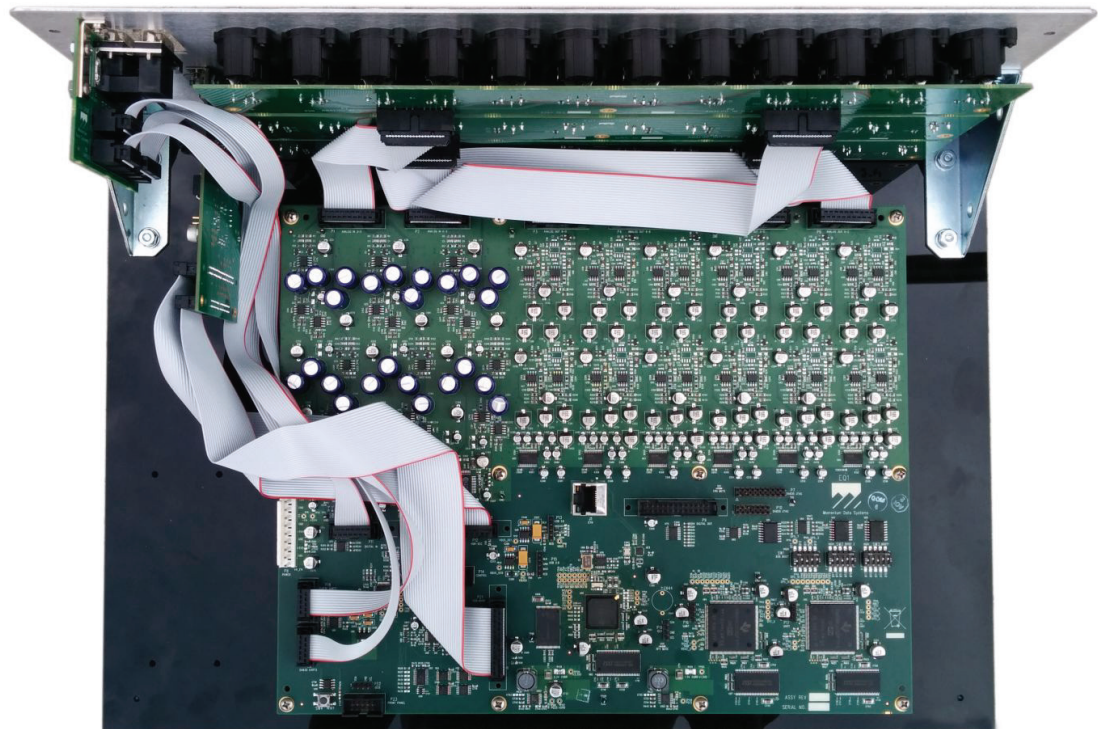
EQ1 Input and DA830 (ARM + DSP) block diagram

EQ1 Multi-DSP development hardware



The normal configuration provides 12 analog outputs per DSP, for a total of 24 outputs. It is possible to modify the hardware to output 16 channels from one DSP.

DA808 subsystem block diagram (showing one of two - both DSPs have the same hardware configuration)



EQ1 Internal view with case and power supplies removed

Ordering information (order code is in *Italics*)

EQ1-DEV DSP development hardware.

- Triple DSP motherboard with DA830 + two DA808 DSPs
- Analog balanced I/O
- SPDIF (coax) input
- HDMI input (PCM only)
- Universal input power supply

No software included. Linux for DA830 available for download. TI CCS tools and appropriate TI JTAG required for development

Consulting services are also available from Momentum Data Systems.

Special order item:

EQ1-DEV16:

- Above version with modifications to support 16 analog outputs from one DSP. Intended for development of "next generation" Dolby & DTS decoder systems.

Related items

Please visit <http://www.mds.com> for more information on these and other products to speed your design to market.

日本でのお問い合わせは、立野電脳(株)

 **立野電脳** EXT営業部
E-mail : sales@dsp-tdi.com

〒198-0063 東京都青梅市梅郷5-955 TEL.0428-77-7000 FAX.0428-77-7010

URL <http://www.dsp-tdi.com/>

EQ1 Dev Data Sheet rev 1c Apr 2014 j2 Specifications subject to change

5432 Bolsa Ave, Unit B, Huntington Beach, CA 92649
714-378-5805

<http://www.mds.com>

