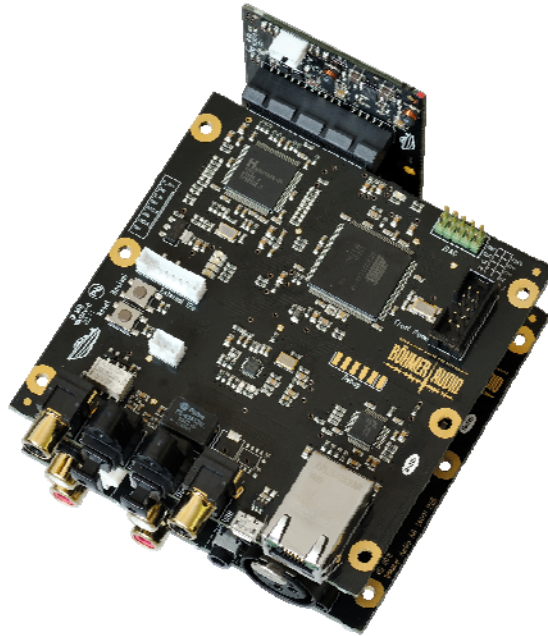


## Digital OEM-platform for hifi application - Hardware Modules -



### Modular Hardware

The modular hardware consists of a DSP board with Ethernet, an AD/DA board and a backplane. The system can easily be extended with new types of boards, such as additional DSP boards, AD/DA boards for reduced or increased amount of I/O:s and/or other types of physical connections. As an example – it is possible to replace the RCA and the 3.5 mm connectors on the BA-ADDA-1 board with an internal connection block for wired connections to other connector types.

With possible connections like Ethernet, asynchronous USB, SPDIF and TosLink, the platform is truly compatible with most modern signal sources. In addition it also provides one i2s input interface and one i2s output interface with support for TDM2 – TDM16. The i2s interfaces makes it easy to integrate sources such as HDMI receiver, wireless audio and output to digital class D amplifiers, etc.

The hardware includes a balanced XLR microphone input with 15V phantom power to support the measurements required by the room correction software module.

### User Interface

The platform can be used with the optional Front Panel to create a complete system including a User Interface. If another type of User Interface is required, the platform supports control interface communication on i2c, SPI and 3.3V RS232. In this manner it is easy to connect the platform to an existing user control interface or to create a more elaborate graphical user interface. Hardware design and code for the optional Front Panel is available at request to further simplify integration.

### Streaming Audio over Ethernet

An Open Source Protocol Streaming solution provides support for 99 discrete streaming sources over Ethernet. Any Windows or Linux PC can output an Ethernet stream that the DSP platform (DSP-Amplifiers or Active DSP Speakers) can catch and playback. Due to the non proprietary streaming solution free streaming software is available for download. Moreover, the Ethernet stream output from the DSP platform can be captured by any other DSP platform.

## OEM System Hardware Technical Specifications

<b>BA-DSP1</b>	Signal processing of the digital data. Digital I/O connections.
<b>Digital Input</b>	<ul style="list-style-type: none"> <li>• 1 x Asynchronous USB audio (44.1 – 96 ks)</li> <li>• 1 x SPDIF (44.1 ks – 192 ks)</li> <li>• 1 x TosLink (44.1 – 96 ks)</li> <li>• 1 x i2s TDM2-16 (44.1 ks – 192 ks)</li> <li>• Thermal monitor from power amplifier (5V = ok, 0V = fault)</li> <li>• Over Current monitor from power amplifier (5V = ok, 0V = fault)</li> </ul>
<b>Digital Output</b>	<ul style="list-style-type: none"> <li>• 1 x SPDIF (96 ks, 192 ks)</li> <li>• 1 x TosLink (96 ks)</li> <li>• 1 x i2s TDM2-16 (96 ks, 192 ks)</li> <li>• Enable to power amplifier modules (pulled up to 5V = enable)</li> </ul>
<b>Digital I/O</b>	<ul style="list-style-type: none"> <li>• 1 x External Ethernet connector</li> <li>• 1 x Asynchronous USB audio</li> <li>• 1 x i2c control interface (internal)</li> <li>• 1 SPI control interface (internal)</li> <li>• 1 RS232 3.3V control interface (internal)</li> </ul>

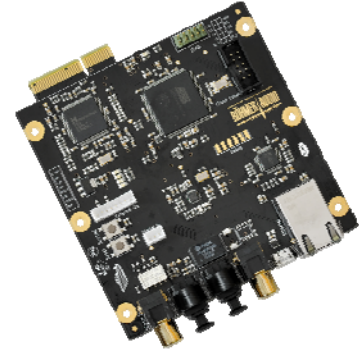


Figure 1: DSP board



Figure 2: AD/DA board

<b>BA-ADDA1</b>	Conversion between analog and digital signal. Analog I/O connections.
<b>Analog Input</b>	<ul style="list-style-type: none"> <li>• 1 x Stereo input pair 2 x RCA (5 dBV = 0 dBFS, 100 kOhm)</li> <li>• 1 x Stereo input 3.5 mm plug (5 dBV = 0 dBFS, 100 kOhm)</li> <li>• 1 x Stereo input pair on internal connector in parallel with 2 x RCA input (5 dBV = 0 dBFS, 100 kOhm)</li> <li>• 1 x Stereo input pair on internal connector in parallel with 3.5 mm plug input (5 dBV = 0 dBFS, 100 kOhm)</li> <li>• 1 x XLR Measurement microphone input (15V Phantom power)</li> </ul>
<b>Analog Output</b>	<ul style="list-style-type: none"> <li>• 8 channels on internal connector (5 dBV = 0 dBFS, 33 Ohm)</li> <li>• 2 channels on RCA optionally mounted on PCB in parallel with internal cable connector outputs (5 dBV = 0 dBFS, 33 Ohm)</li> </ul>

<b>BA-BP1/2</b>	Connections and power supply for the included boards.
<b>Power Input</b>	<ul style="list-style-type: none"> <li>• BA-BP1: Positive Supply min 9 Vdc max 25 Vdc approx. 5 W, Negative Supply min -9 Vdc max -25 Vdc approx. 2 W</li> <li>• BA-BP2: Positive Supply min 9 Vdc max 25 Vdc, 500mA @ 9V = 4.5 W, 220mA @ 25 = 5.5 W</li> </ul>
<b>Digital I/O</b>	• Support for all digital I/O to/from the connected boards

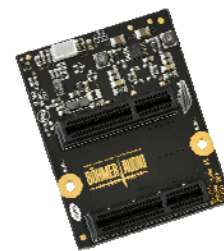


Figure 3: Backplane

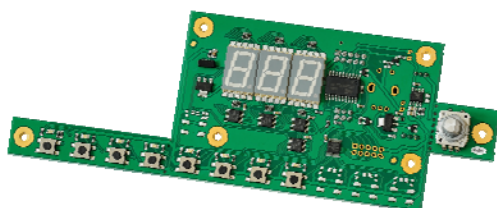


Figure 4: FP board

<b>BA-FP1</b>	PCB for connecting all user controls. Full source code and layout of PCB available on request.
<b>Features</b>	<ul style="list-style-type: none"> <li>• Rotary pulse encoder</li> <li>• Function buttons, momentary close, 1 to 8 buttons</li> <li>• Standby button</li> <li>• 3 x 7 –segment LED with decimal point</li> <li>• LEDs, 1 to 8</li> <li>• IR-receiver</li> </ul>