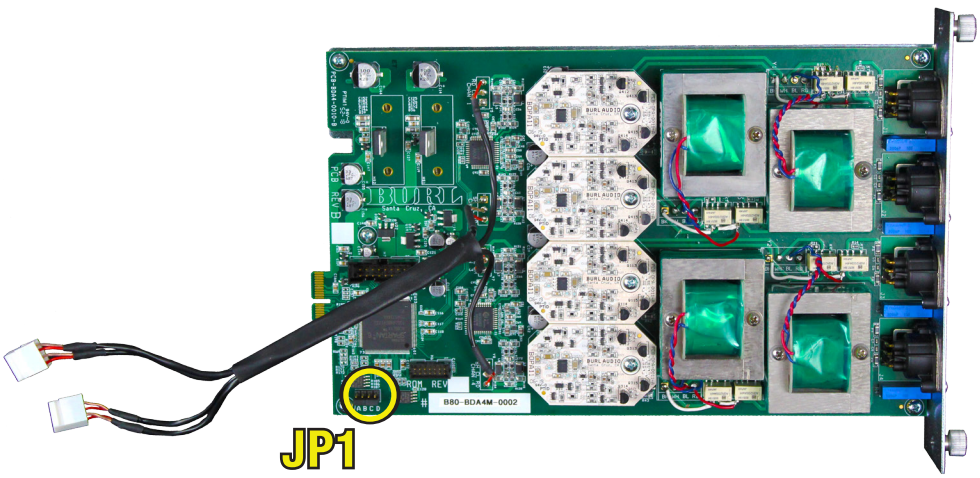
BDA4M
DAUGHTER CARD



Quick Start Guide

Revision A March 12, 2019

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Important information regarding BDA4M latency:

The BDA4M uses jumpers on “JP1” (as shown on cover) to adjust 2 variables: DAC filter selection, and AVID HDIO delay matching.

Jumper Settings for “JP1”

Jumper A - DAC Filter Setting: In default mode with no jumpers set (Image 1), the BDA4M uses the Short Delay Filter with the classic “Burl Sound”. A jumper on A (Image 2) will switch to the Long Delay Filter, with longer latency and a more forward mid-range.

Jumper B - AVID Delay Matching: In default mode, there is no added delay. Setting a jumper on B (Image 3) will increase latency to match the output delay of an HDIO.

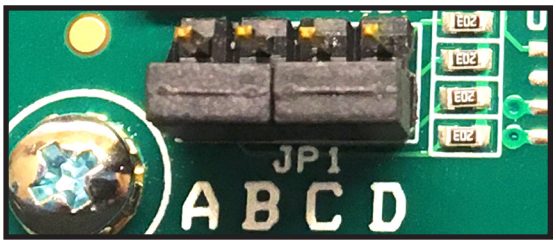


Image 1- Default Jumper Settings: Short Delay Filter, no added latency, classic “Burl Sound”.

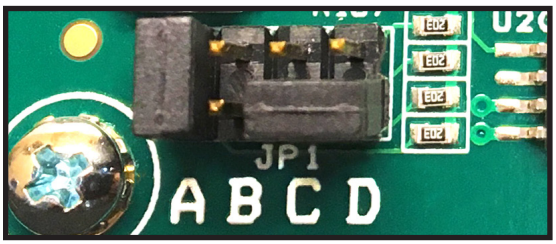


Image 2- Jumper on A: Long Delay Filter, longer delay, more forward mid-range.

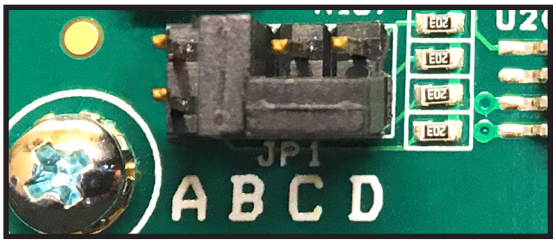


Image 3- Jumper on B: Short Delay Filter, AVID delay matching, classic “Burl Sound”.

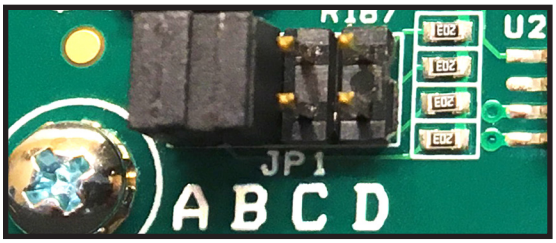


Image 4- Jumper on A & B: Long Delay Filter, more forward mid-range, AVID delay matching. *(see chart below)

This Chart shows different DAC filter delay, sound and AVID delay compensation according to jumpers on A and B.

CONFIG A: Jumper DAC Filter Select	CONFIG B: Jumper AVID Delay Match	DAC Filter Delay	Sound	AVID Delay Compensation					
				44k.1	48k	88.2k	96k	176.4k	192k
No	No	Short	Normal BURL	No	No	No	No	No	No
Yes	No	Long	Forward mid-range	No	No	No	No	No	No
No	Yes	Short	Normal BURL	Yes	Yes	Yes	Yes	Yes	Yes
Yes	Yes	Long	Forward mid-range	Yes	Yes	*NOTE	*NOTE	*NOTE	*NOTE

***NOTE:** AVID delay matching applies to all sample rates for the Short Delay Filter, but only to 44.1k, 48k for the Long Delay Filter. **To match the delay of AVID at 88.2k, 96k, 176.4k, and 192k with the Long Delay Filter, use the Hardware Insert Delay in Pro Tools.**

Installing the BDA4M into B80 Mothership Chassis

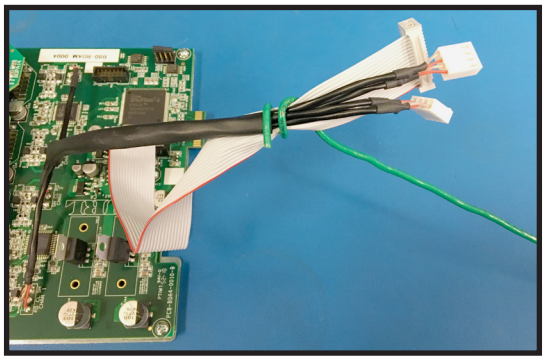


Image 5: Use the provided solid core wire to wrap around the cables and pass through from the rear of the chassis to the front.

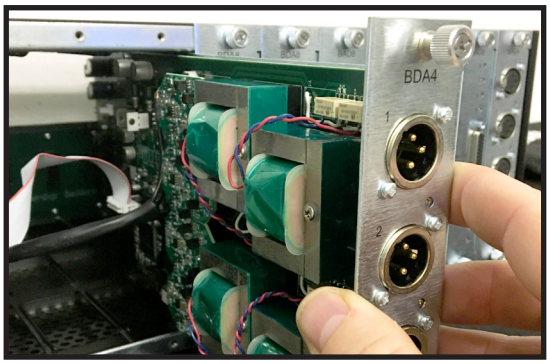


Image 6: When installing the BDA4M into the B80 Chassis, make sure the metal Daughter Card backplate (not the PCB) is inserted into the card guides.

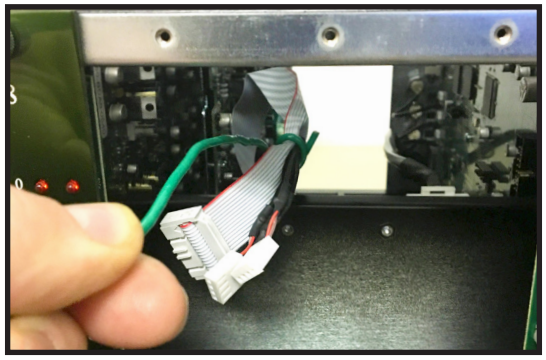


Image 7: Pull the cables towards the front of the unit.

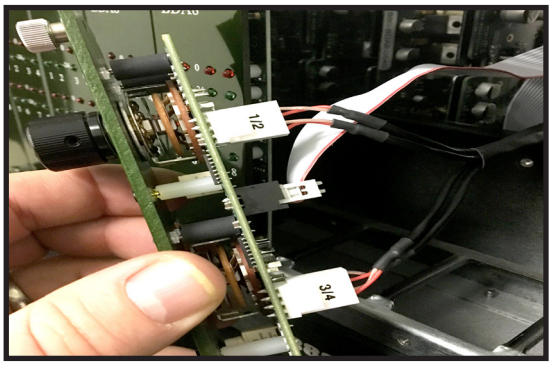


Image 8: Attach the 4-pin connectors (1/2 is on the top, 3/4 is on the bottom) and the ribbon cable to the front panel. Attach the front panel to the chassis using two thumb screws.

Installing the BDA4M into B16 Mothership Chassis

Image 9: With the B16 lid removed, install the BDA4M into the card guides as shown here. Make sure the metal Daughter Card backplate, not PCB, is inserted into the card guides.

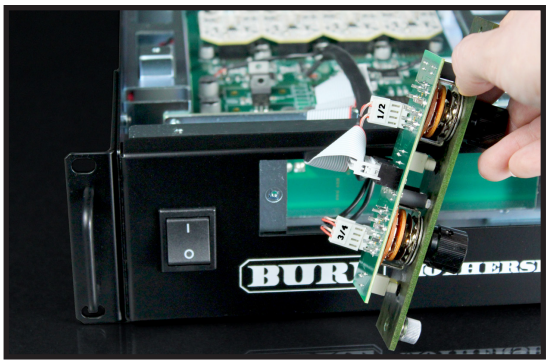


Image 10: Pull the cables through to the front of the chassis. Attach the 4-pin connectors (1/2 is on the left, 3/4 is on the right) and the ribbon cable to the front panel. Attach the front panel to the chassis using two thumb screws.

Front Panel:

Image 11: BDA4M Front Panel

Rear Panel:

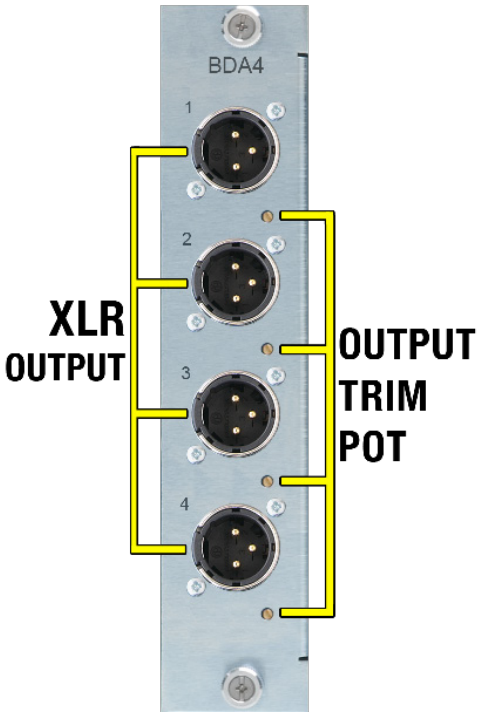
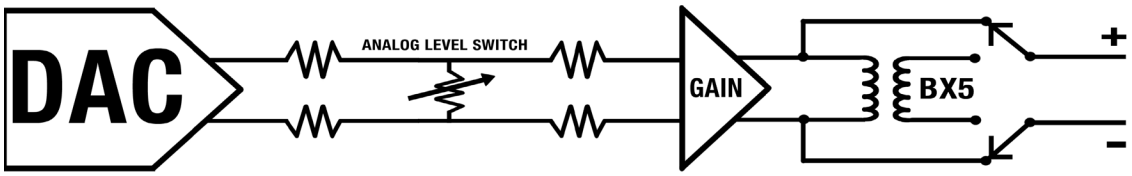


Image 12: BDA4M Rear Panel

BDA4M Analog Output Level Switch Attenuation



The BDA4M is designed to be a multi-purpose DAC used for mixing, mastering, and monitoring. When monitoring a full scale, mastered file, you can turn the analog signal down for increased headroom and cleaner output.

See the table below for maximum analog output at each level setting:

BDA4M Analog Level Switch	Digital Full Scale	BDA4M Analog Output
-18 dBfs = +4dBu	0 dBfs	+22 dBu
-16 dBfs = +4dBu	0 dBfs	+20 dBu
-14 dBfs = +4dBu	0 dBfs	+18 dBu
-12 dBfs = +4dBu	0 dBfs	+16 dBu
-10 dBfs = +4dBu	0 dBfs	+14 dBu
-8 dBfs = +4dBu	0 dBfs	+12 dBu

BDA4M Op-amp Configuration

The BDA4M Daughter Card can be customized with four channels of the BOPA11, four channels of the BOPA14, or two channels of each op-amp.

The BOPA11 is ideal for monitoring, with maximum clarity, detail, and minimal distortion. The BOPA14, which was initially designed for the BDA8, has a slightly more pleasing tone and is preferred for mixing.

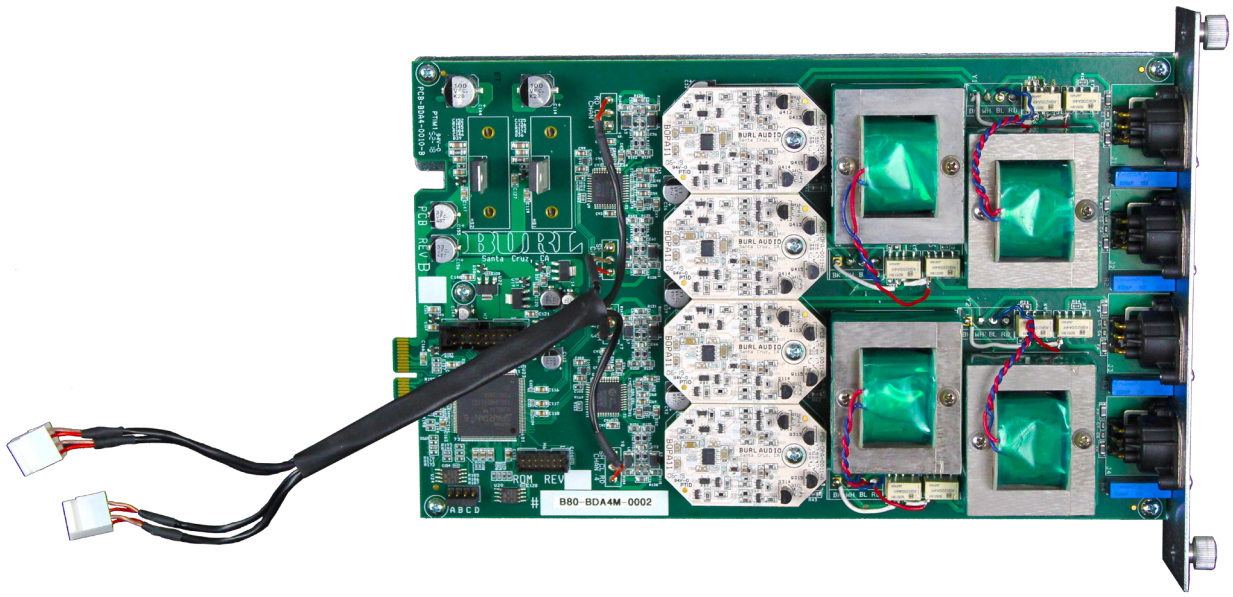


Image 13: BDA4M-1111, utilizing BOPA11 on all channels.

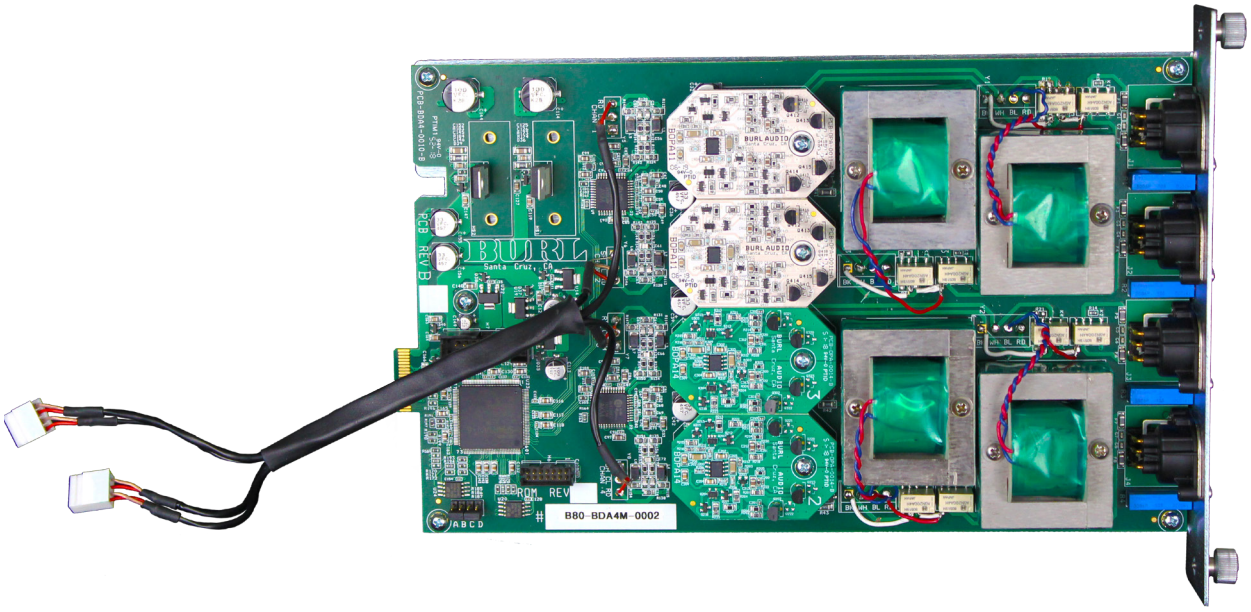


Image 14: BDA4M-1114, utilizing BOPA11 on channels 1/2, and BOPA14 in channels 3/4.