B16-BMB4
MOTHERSHIP

BMB4 Rev A0 Rom A1

Quick Start Guide

Section 1: Getting Started
Section 2: SoundGrid Quick Start
Section 3: BMB4 Clocking

Revision 1.6 May 17, 2018

1. GETTING STARTED

1.1 Register

Please register all serial numbers for your B16 MOTHERSHIP chassis and all Daughter Cards.

You *must* register to activate your warranty! Please visit: **www.burlaudio.com/register**.

1.2 Install Daughter Cards (If Necessary)

If the Daughter Cards have been pre-installed, skip to page 3, step 1.8.

1.3 Remove Lid

1. Remove 9 screws on top and 2 on each side (**Image 1**).
2. Push lid up from card slot (**Image 2**).

Image 1: Top view shows location of 4 screws on side before removing the lid.

Image 2: Push lid up.

1.4 Verify Jumper Settings On BMB4

1. Find H9 on the BMB4 Motherboard, as shown in **Image 3** below.
2. Jumpers should be on 1 and 2 for use with B16 MOTHERSHIP.

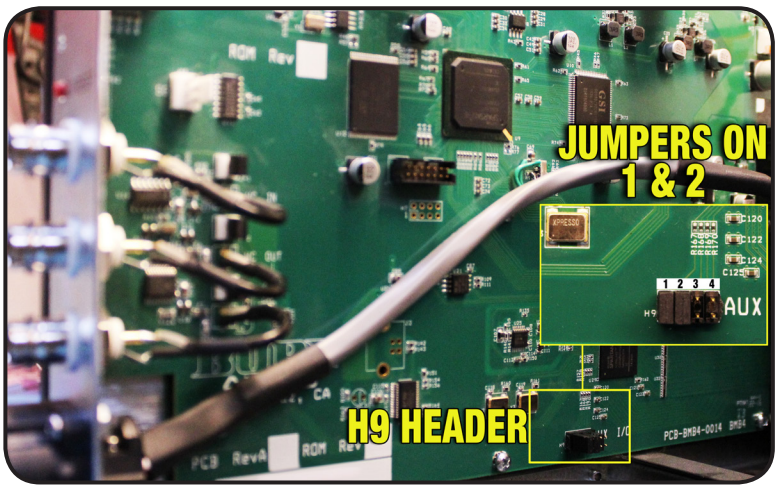


Image 3: Locate the H9 Header on BMB4 Motherboard. From the rear of the chassis, BMB4 is on the bottom left. The H9 Header is highlighted.

For B16, jumpers must be on 1 and 2.

1.5 Install Daughter Cards

1. Make sure the card is inserted into the card guides, and the card is properly connected to the backplane.
2. Pull cables through to the front for connection to faceplate.
3. Inputs 1-8 or outputs 9-16 are found in slot 1. Inputs 9-16 or outputs 1-8 are found in slot 2 (**Image 4**).

Image 4: Front view, with card slot numbers. Configuration for 8 in, 8 out.

Image 5: Rear view. Configuration for 8 in, 8 out.

1.6 Attach Power Cable And Ribbon Cable To Faceplate

1. The red wire should be closest to the orange power connector for BAD4/BDA8 faceplates.
2. BAD8 Daughter Card has the ribbon cable *only*.
3. Always make sure the orange 2 pin connector is attached properly.

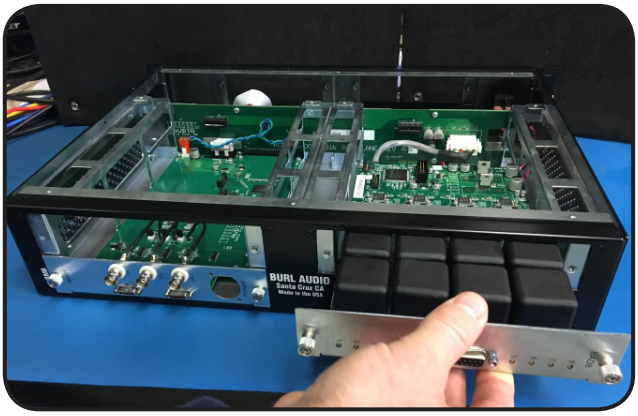


Image 6: Insert the Daughter Card into the card guides. Make sure the metal Daughter Card backplate, *not* PCB, is inserted into the card guides.

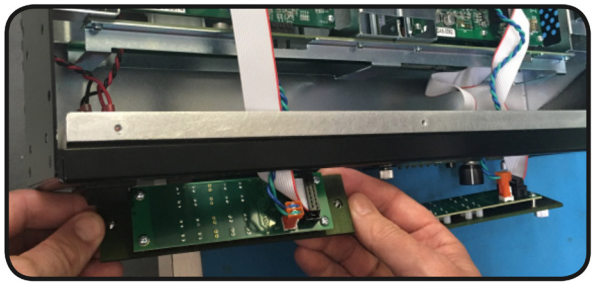


Image 7: Attach the ribbon cable and 2 pin connector for BAD4 and BDA8 to the front panel.

For more information on installing Daughter Cards, please go to
www.burlaudio.com/b80-quick-start-video

1.7 Attach Lid With All Screws

1.8 Install Vents

Image 8: B16 MOTHERSHIP with 1U vent above for proper airflow.

Important Installation Notes:

1. Install the 1U vent above the B16 chassis. The MOTHERSHIP *MUST* run with proper ventilation.
2. Failure to properly vent the MOTHERSHIP chassis above may cause failure, and will void the warranty.

2. SOUNDGRID QUICK START

YOU WILL NEED:

- B16 Mothership with BMB4 Motherboard
- Waves Central and Waves SoundGrid Studio
- Gigabit Ethernet Switch *(optional, you can connect BMB4 directly to host CPU)*
- Cat5e, Cat6 or Cat7 Ethernet Cables
- Waves SoundGrid Server *(optional)*

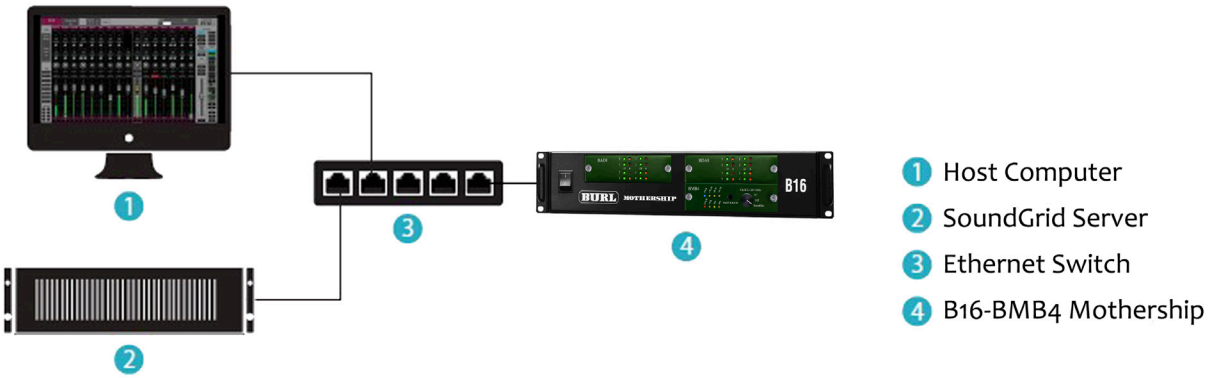


Image 9: Basic B16-BMB4 MOTHERSHIP setup.

For a complete list of Waves supported Ethernet switches:
https://www.waves.com/support/network-switches-for-soundgrid-systems

2.1 Download And Install Waves Central

Use the Waves Central application to download and install Waves software.
To download: **https://www.waves.com/downloads/central**

1. Launch Waves Central and log in. Create an account if needed.

2.2 Install The BMB4 SoundGrid Motherboard Driver

1. Via Waves Central, select “Install Products” and choose “Online”.
2. Select “All Waves Products” at the top of the page (See **Image 10** below) and then scroll or search for the “BMB4 SoundGrid Motherboard Driver” and select.
3. Click the “Install” button.
4. Restart your computer.

Note: Installing BMB4 SoundGrid Motherboard Driver will also install Waves SoundGrid Studio.

SoundGrid Studio can also be downloaded directly here:
https://www.waves.com/soundgrid-studio-application

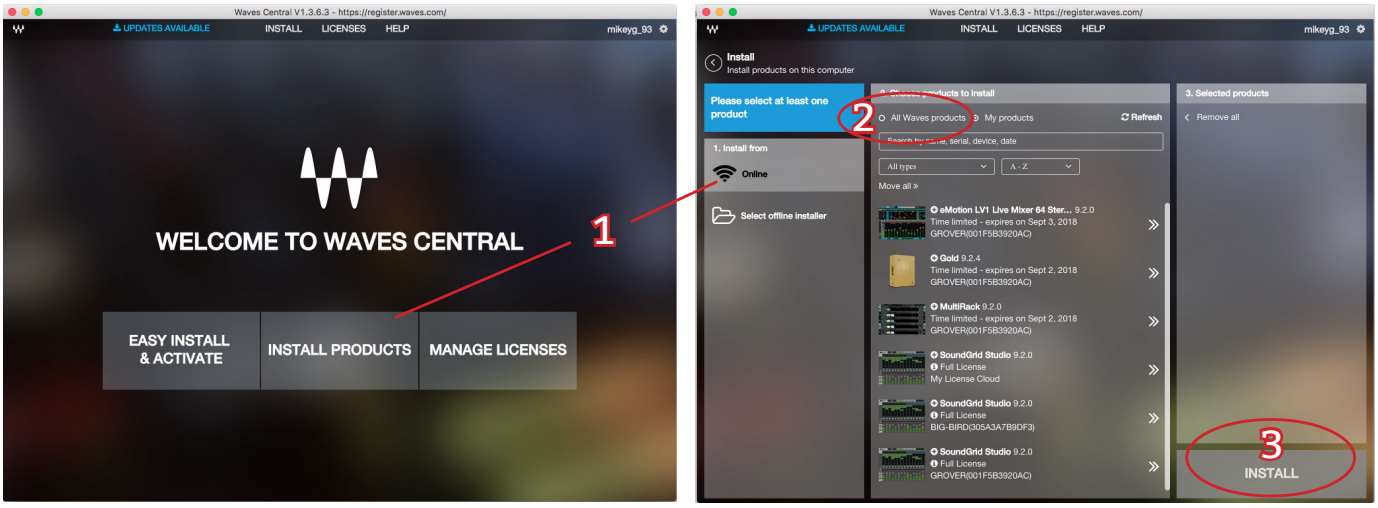


Image 10: Install the BMB4 SoundGrid Motherboard Driver.

B16-BMB4 devices *must* be assigned to a host application. This is done within the application. Assignment is similar, but not identical, in all SoundGrid host applications.

In this example, a B16-BMB4 MOTHERSHIP will be assigned to SoundGrid Studio.

Refer to the SoundGrid Studio’s user guide for detailed instructions:
https://www.waves.com/1lib/pdf/soundgrid/soundgrid-studio-manual.pdf

2.3 Disconnect All Other Devices From Gigabit Switch

Note: If you are connecting the BMB4 directly to your computer, skip to step 2.6.

For best results, start by removing all other connections to the switch. SoundGrid should be on its own network. Use different network ports on your computer for other networks (such as internet).

2.4 Connect BMB4 Motherboard To Gigabit Ethernet Switch

Cat5e, Cat6, or Cat7 Ethernet cables are supported.

SoundGrid supports the following sample rates:

- 44.1 kHz
- 48 kHz
- 88.2 kHz
- 96 kHz

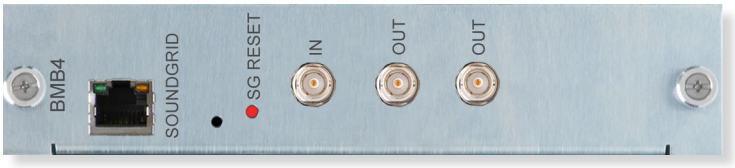


Image 11: BMB4 rear panel.

2.5 Connect The Computer's Native Ethernet Port To Gigabit Ethernet Switch Using CAT6 Ethernet Cables

2.6 Set BMB4 Front Panel To INT, EXT, Or SoundGrid

Image 12: BMB4 front panel. Set Clock Control to INT, EXT, or SoundGrid.

- When using the B16 on internal clock, set to INT.
- If using external word clock, set to EXT.
- When clocking off SoundGrid network, set to SoundGrid.

For a complete guide to BMB4 Clocking, see page 9.

2.7 Select Network Port For SoundGrid

Image 13: In this example, we are using "Port 1" on the CPU, which is identified as "en0".

2.8 Assign BMB4 To Host Application

I/O devices are assigned in the Device Racks of the System Inventory tab. You can assign the B16-BMB4 to any Device Slot.

1. Open SoundGrid Studio application.
2. Select the "Setup" window.
3. Choose the "System Inventory" tab. This is where devices are assigned.

Image 14: Shows device racks in the system inventory tab.

4. If the B16-BMB4 is not already assigned to the SoundGrid host, click on the arrow in an empty device slot (See **Image 15a** below).

Image 15a: Click on the arrow in an empty device slot.

5. Choose "Burl Audio I/O" from the dropdown menu.
6. Repeat this step to assign your DAW to Rack B (See **Image 15b** below).

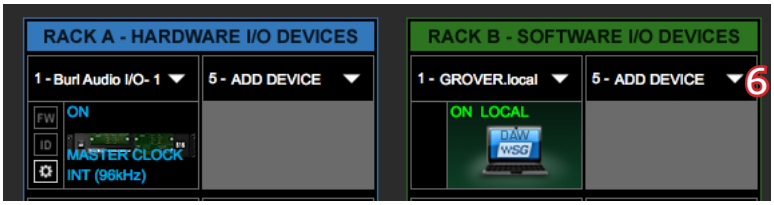


Image 15b: The Burl Audio I/O device will appear in the device Rack A. Your DAW will appear in the device Rack B. In this example, our CPU is named "Grover".

2.9 Assign BMB4 To Driver And Driver To BMB4

When streaming audio to and from the MOTHERSHIP and a DAW, you must assign the MOTHERSHIP inputs and outputs to the SoundGrid ASIO/Core audio driver.

All device and driver channels are shown along both the horizontal and vertical axes.

2.10 Input Assignment

Patch channel 1 from BMB4 to SoundGrid Driver channel 1. This assigns B16 input ch.1 to SoundGrid ch. 1 (See **Images 16** and **17**).

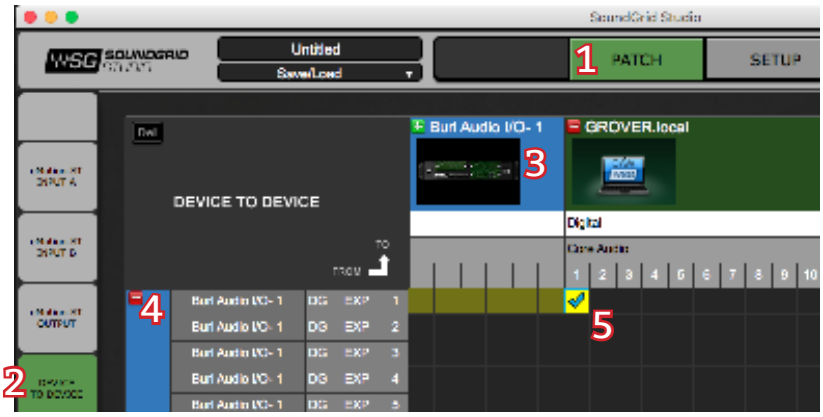


Image 16:

1. Select Patch Window.
2. Select Device To Device.
3. Maximize DAW. In this example, our CPU is named “Grover”.
4. Maximize “Burl Audio I/O-1”. In this example, the MOTHERSHIP is in “Bank A-Slot 1”.
5. Patch channel 1 from the MOTHERSHIP to channel 1 of the Driver.

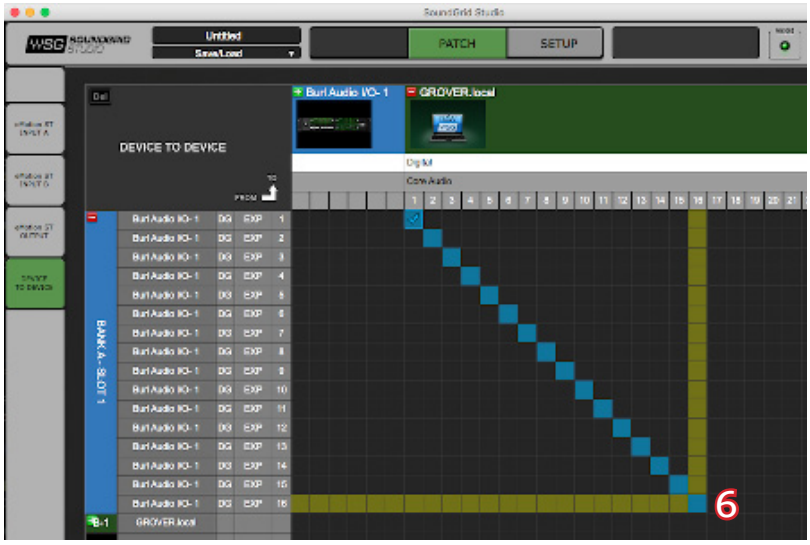


Image 17:

6. Click and drag from channel 1 downwards diagonally to enable all inputs from the MOTHERSHIP.

In this example, we have 16 inputs connected from the MOTHERSHIP to SoundGrid.

2.11 Output Assignment

Patch channel 1 from BMB4 to SoundGrid channel 1. This assigns B16 output ch. 1 to SoundGrid ch. 1 (See **Images 18** and **19**).

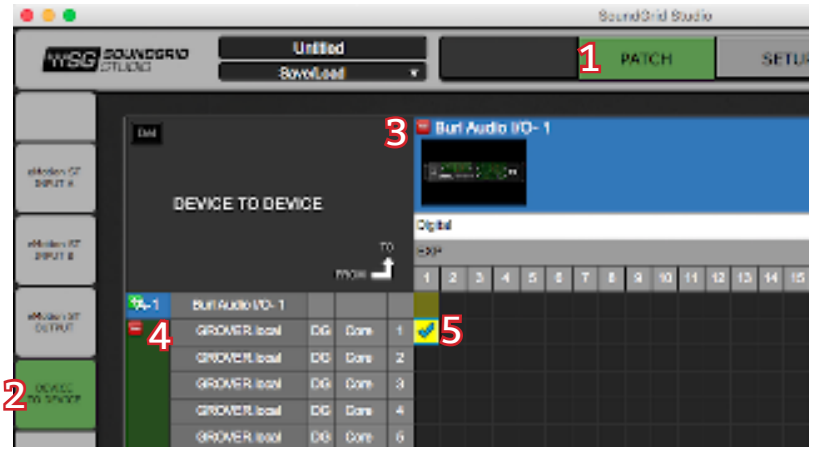


Image 18:

1. Select Patch Window.
2. Select Device To Device.
3. Maximize “Burl Audio I/O-1”.
4. Maximize “Bank B-Slot 1”.
5. Patch channel 1 from DAW to channel 1 of the MOTHERSHIP.

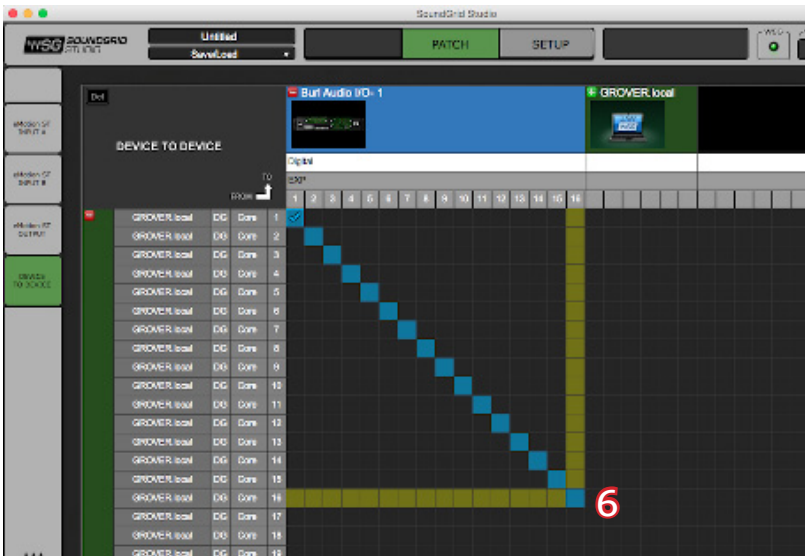


Image 19:

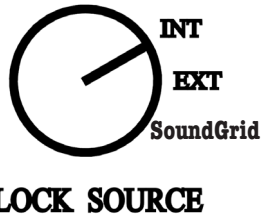
6. Click and drag from channel 1 downwards diagonally to enable all outputs from SoundGrid.

In this example, we have 16 outputs connected from the MOTHERSHIP to SoundGrid.

3. BMB4 CLOCKING

There are 3 ways to clock the B16 MOTHERSHIP:
BMB4 set to Internal Clock, External Clock, or Sound Grid

3.1 Clocking BMB4 To Internal Word Clock



1. Set BMB4 front panel to INT.
2. Push the "Sample Rate" button on BMB4 faceplate to toggle to the desired sample rate.
3. Open SoundGrid Studio, select SETUP.
4. Set SoundGrid sample rate to "SLAVE" (**Image 20**).

Image 20: SoundGrid Studio set to "SLAVE".

5. In SoundGrid Studio, open MOTHERSHIP GUI by clicking on the gear box in the lower left corner (**Image 21**).
6. Set Source to "B16 Control". Soundgrid Studio and GUI sample rates should *both* change to follow the B16 (**Image 22**).

Image 21: Open GUI Settings.

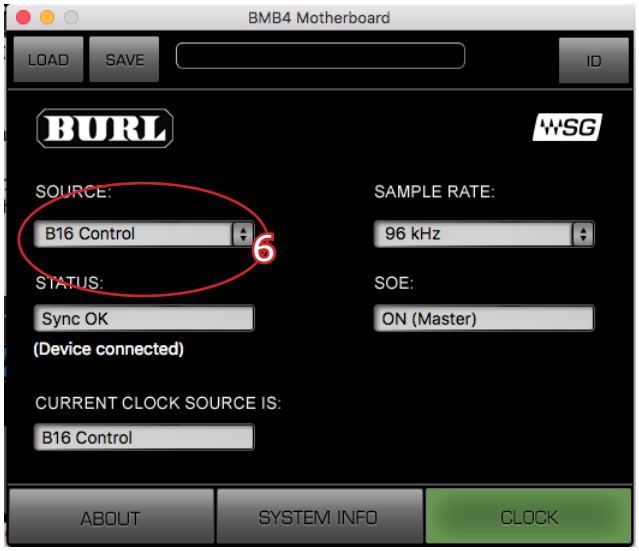
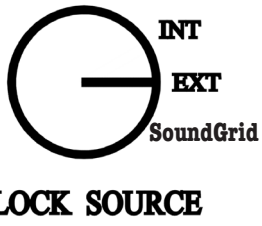


Image 22: Set B16 GUI Source to "B16 Control".

NOTE: The MOTHERSHIP will *always* default to 96k when powered on. You must *manually* change the sample rate on the BMB4 front panel.

3.2 Clocking BMB4 To External Word Clock



1. Set BMB4 front panel to EXT.
2. Connect External clock to word clock IN on BMB4.
3. Open SoundGrid Studio, select SETUP.
4. Set SoundGrid sample rate to “SLAVE” (**Image 23**).

Image 23: SoundGrid Studio set to “SLAVE”.

5. In SoundGrid Studio, open MOTHERSHIP GUI by clicking on the gear box in the lower left corner (**Image 24**).
6. Set Source to “B16 Control”. Soundgrid Studio and GUI sample rates should *both* change to follow the External Clock source (**Image 25**).

Image 24: Open GUI Settings.

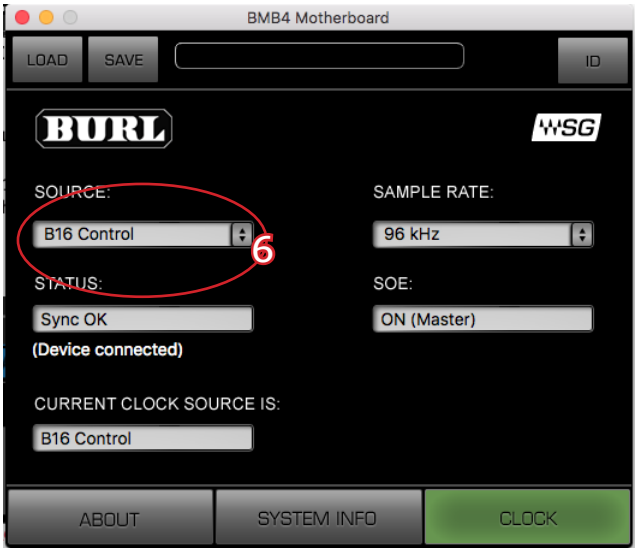
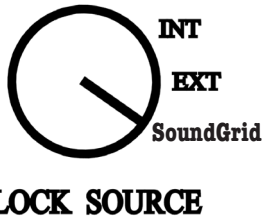


Image 25: Set B16 GUI Source to “B16 Control”.

NOTE: When using EXT clock, the MOTHERSHIP will *not* need to be manually set via the front panel.

3.3 Clocking BMB4 To SoundGrid



1. Set BMB4 front panel to SoundGrid.
2. Open SoundGrid Studio, select SETUP.
3. Set SoundGrid sample rate to “MASTER” (**Image 26**).

Image 26: SoundGrid Studio set to “MASTER”.

4. In SoundGrid Studio, open MOTHERSHIP GUI by clicking on the gear box in the lower left corner (**Image 27**).
5. Set Source to “Soundgrid Internal”. Soundgrid Studio and GUI sample rates should *both* change to follow the B16 (**Image 28**).

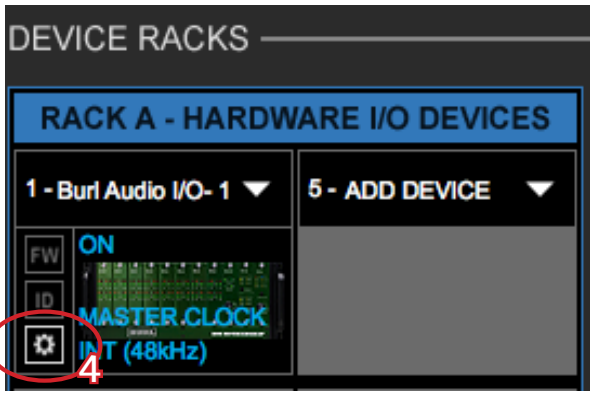


Image 27: Open GUI Settings.

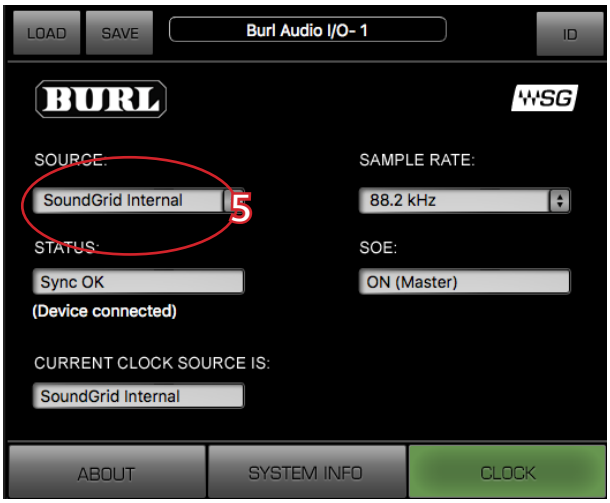


Image 28: Set B16 GUI Source to “SoundGrid Internal”.

NOTE: When using the SoundGrid clock, the MOTHERSHIP will *not* need to be manually set via the front panel.