B16-BMB3
MOTHERSHIP

BMB3 Rev C Rom 1

Quick Start Guide

Chapter 1: Getting Started
Chapter 2: Dante Quick Start
Chapter 3: Dante Clocking

Revision 1.4 March 22, 2018

1. GETTING STARTED

1.1 Register

Please register all serial numbers for your B80 MOTHERSHIP chassis, all Daughter Cards, and BP-300.

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

1.2 Remove Lid

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

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

Image 2: Push lid up.

1.3 Check Jumper Settings On BMB3

1. Find H8 on the BMB3 Motherboard, as shown in **Image 3**.
2. Make sure jumpers are set on Jumpers 1 and 8.
3. Jumper positions 1 determines input mapping (BAD4, BAD8).
4. Jumper positions 2, 3, 4, 5, 6 and 7 are NULL, default for B16.
5. Jumper position 8 determines use for B16 or B80 chassis.

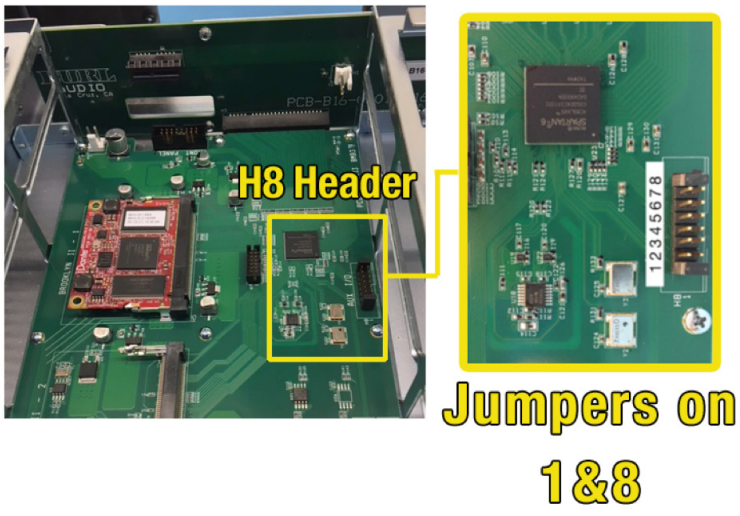


Image 3: Locate the H6 Header on BMB3 Motherboard. From the rear of the chassis, BMB3 is on the left.

The H8 Header is highlighted.

For B16, make sure jumpers are set on 1 and 8.

1.4 Install Daughter Cards

1. See card slot numbers and corresponding Inputs and Outputs in **Image 4**.
2. Daughter Cards will ship with wire assemblies already attached to the Daughter Cards.
3. Make sure the card is inserted into the card guides and properly connects to the backplane.
4. Pull cables through to the front for connection to the faceplate.

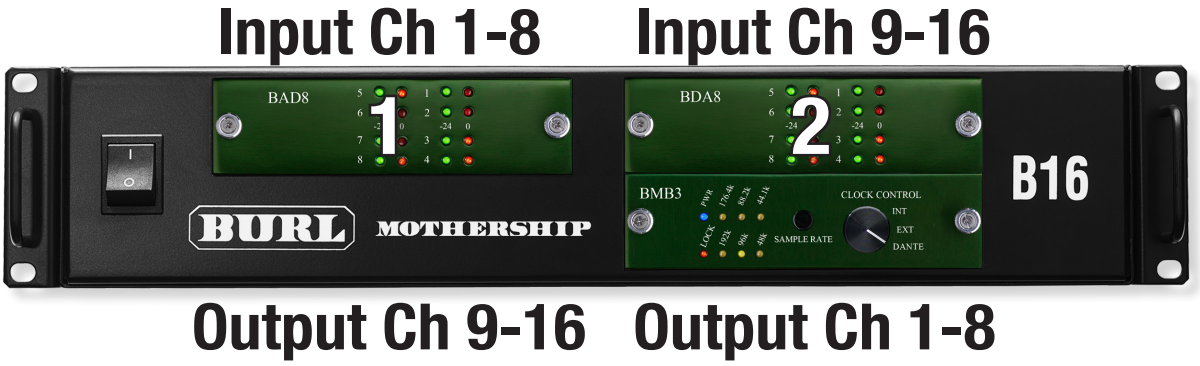


Image 4: B16 Front view shows Inputs 1-8 or Outputs 9-16 are found in slot 1. Inputs 9-16 or Outputs 1-8 are found in slot 2.

Image 5: B16 rear view, configured for 8 in, 8 out.

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

1.5 Attach Ribbon Cables To Faceplate

Note: Newer cards only have ribbon cable. Older cards have ribbon cable *and* power cable (See **Image 6**).

(If applicable) The red wire should be closest to the orange power connector. Make sure the orange 2 pin connector is attached properly.

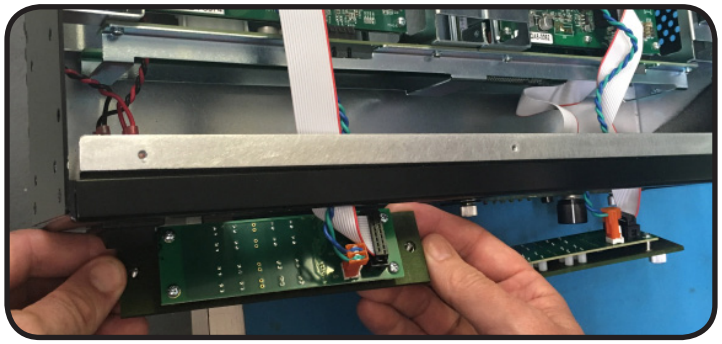


Image 6: Connect ribbon cable and 2 pin connector (BAD4/BDA8) or ribbon cable (BAD8)

1.6 Attach Lid With All Screws

1.7 Install Vent ABOVE B16 Chassis

The MOTHERSHIP *must* run with proper ventilation!

Failure to properly vent the MOTHERSHIP chassis above may cause failure, and will void the warranty.

Image 7: 1U vent above B16 chassis allows for proper ventilation

2. DANTE QUICK START

YOU WILL NEED:

- B16 MOTHERSHIP with BMB3 Motherboard
- Dante PCIe Card - **OR** - Dante Virtual Sound Card (DVS) (See 1.1, below)
- Gigabit Ethernet Switch
- Cat6 Ethernet Cables
- Dante Controller (See 1.2 below for download instructions)

2.1 Install PCIe Card In CPU Or Download And Install Dante Virtual Soundcard (DVS)

For optimal performance, the B16-BMB3 Dante MOTHERSHIP should be used with a Dante PCIe Card.

Focusrite Rednet PCIe, Rednet PCIer, or Yamaha Dante Accelerator PCIe cards are recommended.

When latency is not an issue, (live recording, archiving, etc) Dante Virtual Sound Card (DVS) may be used in place of a PCIe Card. DVS will add 4ms of latency in and out, for a total round trip of 8ms. Total latency of the system will include the latency of the converter chips and the DAW. We recommend a PCIe Card for *all* applications.

To download DVS: **https://www.audinate.com/products/software/dante-virtual-soundcard**

2.2 Download And Install Dante Controller

To download controller: **https://www.audinate.com/products/software/dante-controller**

2.3 Disconnect All Other Devices From Gigabit Switch

For best results, start by removing all other connections to the switch. Dante should be on its own network.

2.4 Connect BMB3 Ethernet Port 1 to Gigabit Ethernet Switch

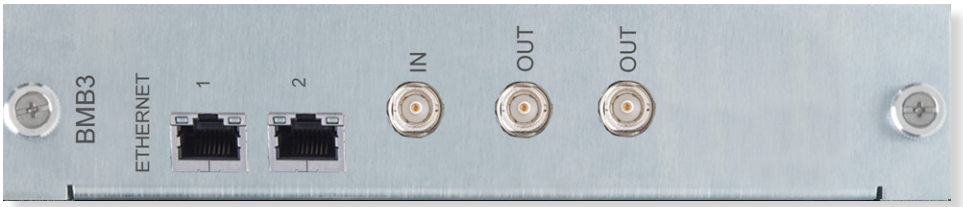


Image 8: Only Port 1 of the BMB3 card can be used with B16.

2.5 Set BMB3 Front Panel to INT, EXT, or DANTE

Image 9: BMB3 Front panel. Set Clock Control to INT, EXT, or DANTE

For a complete guide to Dante Clocking, see page 10.

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

2.6 Connect The Computer's Native Ethernet Port To Gigabit Ethernet Switch

Even when using a Dante PCIe Card, Dante Controller requires a native Ethernet port and will *not*work via the PCIe Card.

2.7 If Using A PCIe Card, Connect Primary Port Of PCIe Card To Gigabit Ethernet Switch

When using a Dante PCIe Card, audio is transmitted via the PCIe Card.

2.8 For INT, Set BMB3 To Desired Sample Rate

Push the "Sample Rate" button on BMB3 faceplate to toggle through sample rates. When set to INT, BMB3 must *always* be manually set to the desired sample rate. When using EXT or DANTE clock, the MOTHERSHIP will *not* need to be manually set via the front panel.

2.9 For Dante Virtual Soundcard (DVS), Open And Run DVS

2.10 Open "Dante Controller"

2.11 Click On “Routing” Tab

(See **Image 10**)

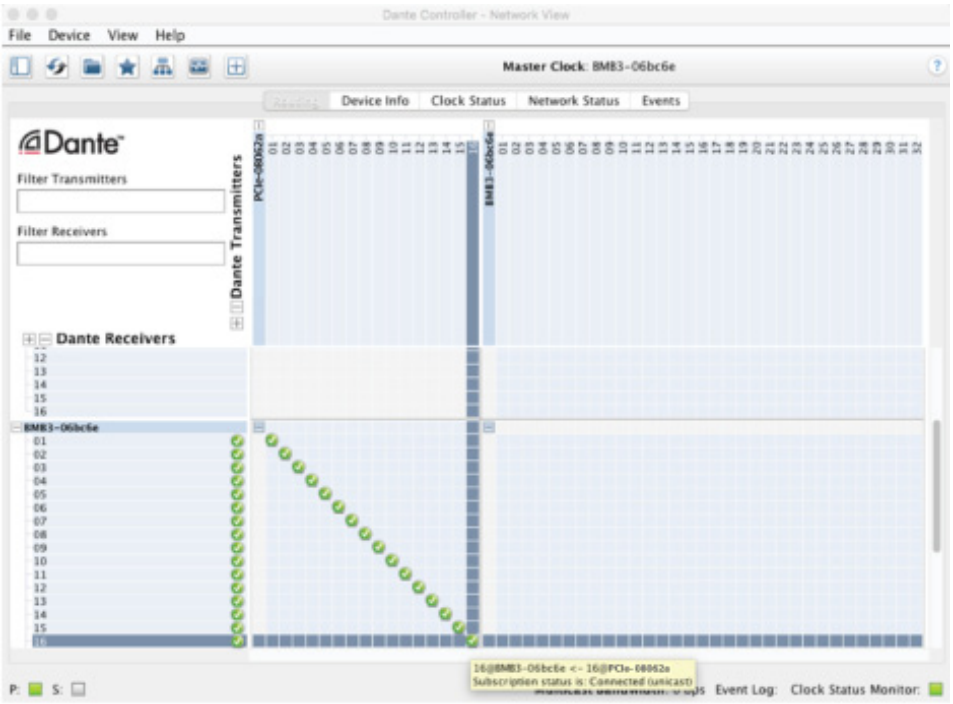


Image 10: Shows routing BMB3 receiver ch. 1-16 to PCIe Card channel 1-16.

2.12 Maximize The Routing View

Click on the “+” next to “Dante Receivers” and “Dante Transmitters (See **Image 11**).

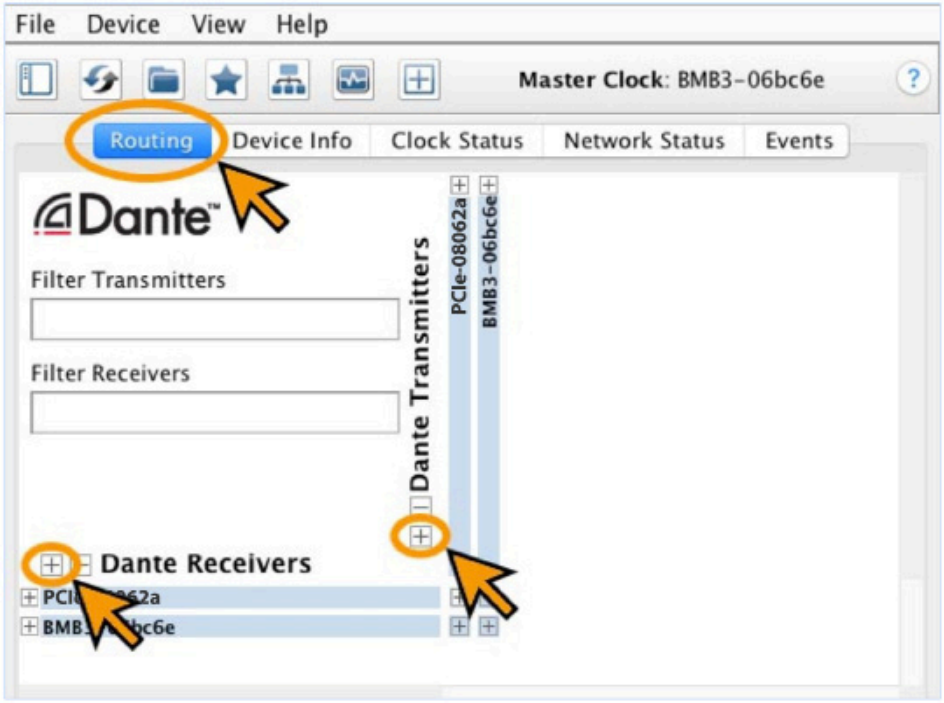


Image 11: Shows “Routing” tab and “+” to maximize routing view to see all Receiver and Transmitter channels.

Note: “Transmitter” refers to the signal from MOTHERSHIP input card sent to the BKII Dante Card on BMB3 Motherboard, and then to the PCIe Card (or CPU when using DVS). “Receiver” refers to the PCIe Card sending signal to the BKII Card on the BMB3 Motherboard, which then feeds the MOTHERSHIP output card.

2.13 Input Assignment

Route BMB3 ***Transmitter*** channel 1 to PCIe (or CPU if using DVS) ***Receiver*** card channel 1. This routes B16 input ch.1 to PCIe (or DVS) card ch. 1 (See **Image 12**).

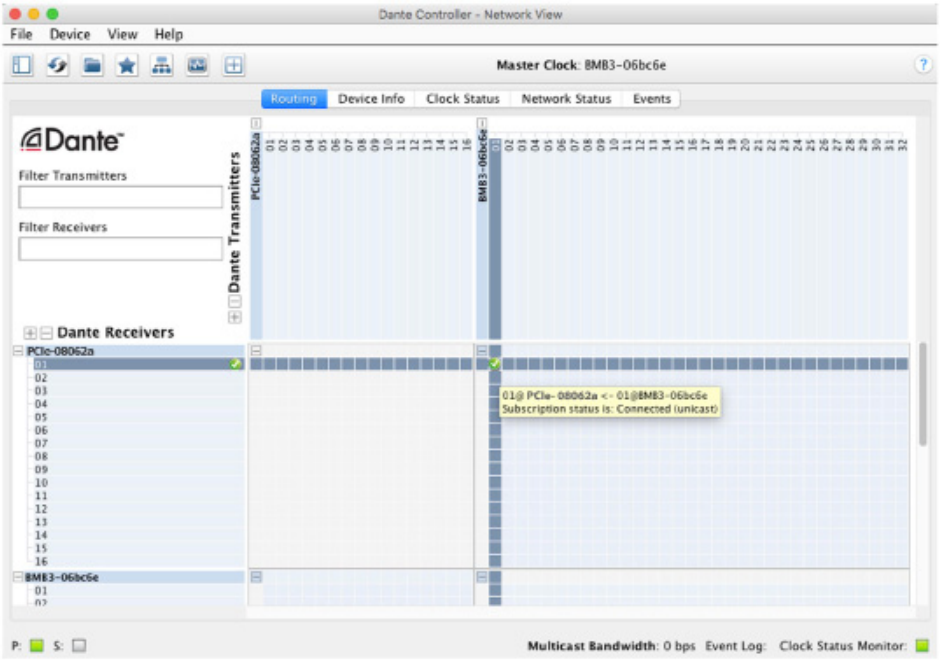


Image 12: Shows routing BMB3 transmitter channel 1 to PCIe Card channel 1.

Continue with input assignments for your MOTHERSHIP configuration (See **Image 16**).

2.14 Output Assignment

Route BMB3 ***Receiver*** channel 1 to PCIe (or CPU if using DVS) ***Transmitter*** channel 1. This routes PCIe ch. 1 to B16 output ch. 1 (See **Image 13**).

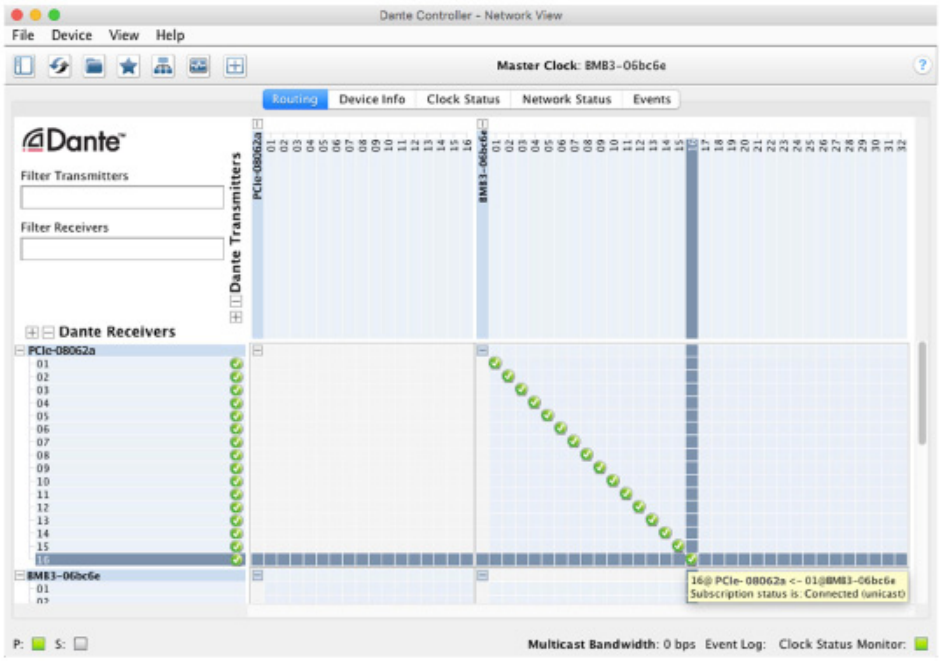


Image 13: Shows routing BMB3 transmitter channel 1-16 to PCIe Card channel 1-16.

(Output Assignment Continued)

Continue with output assignments for your MOTHERSHIP configuration.

See **Image 14** for an example of routing B16 MOTHERSHIP outputs to the PCIe Card.

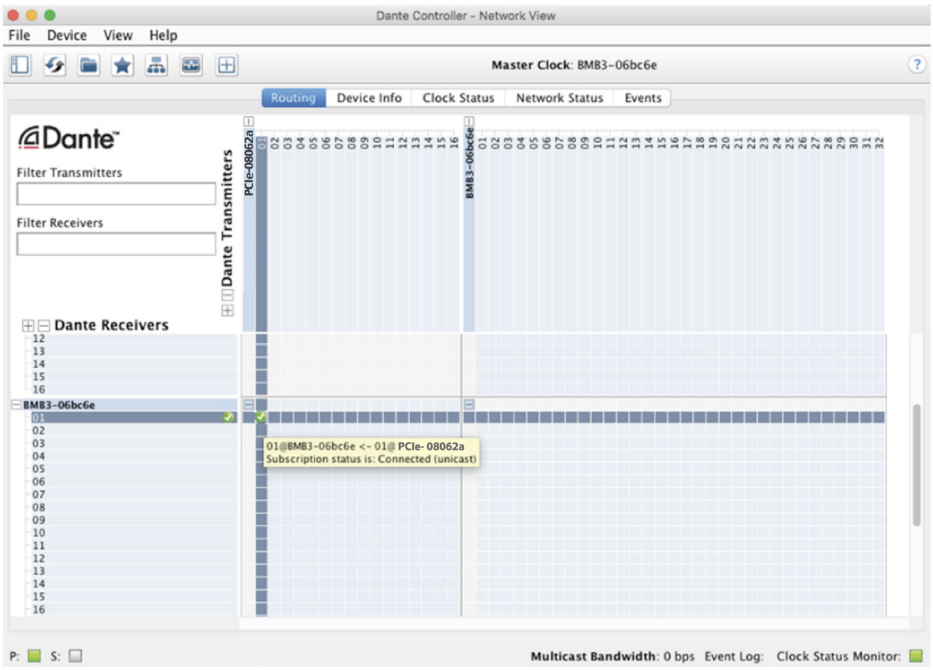


Image 14:
Shows routing BMB3 receiver ch. 1 to PCIe Card channel 1.

2.15 Click On "Device Info"

Then double click on BMB3 to open "Device View" window (See **Image 15**).

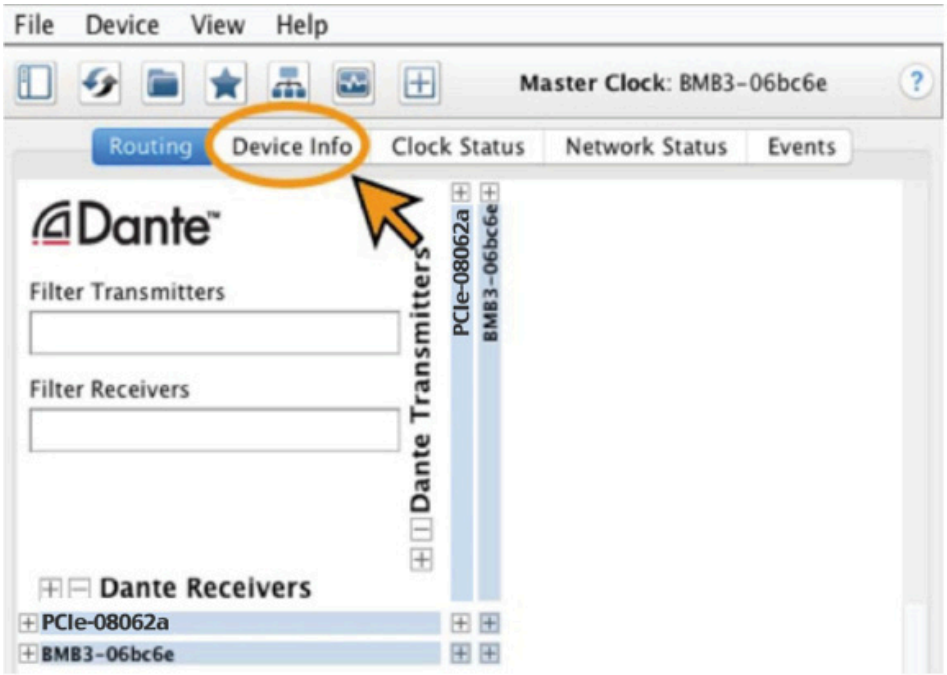


Image 15:
Device Info tab.

2.16 Click On “Device Config”

Select the sample rate and select preferred latency (See **Image 16**).

Note: Actual latency used between two endpoints is the larger of the two endpoint settings. If using the Dante Virtual Soundcard (DVS), anything to or from DVS will have a 4ms latency in and out. Using a PCIe Card is recommended to get down to 150µs.

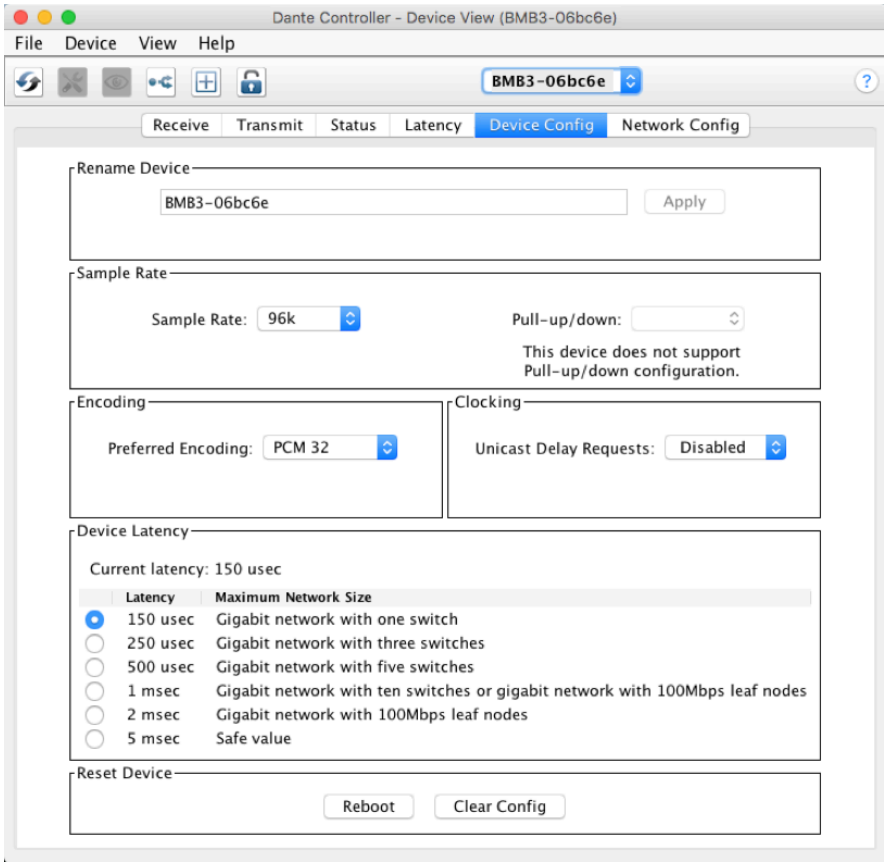


Image 16:
Shows
device configuration
for BMB3.

2.17 Click On The Dropdown Menu

Select DEVICE CONFIG. for each Dante device including the PCIe Card.

Make sure the sample rate is matching on each device!

Note: Sample rate *MUST* be set for each unit, including the PCIe Card.

For more information on Dante, visit: **https://www.audinate.com/solutions/dante-overview**

3. DANTE CLOCKING

There are 3 ways to clock the B16 MOTHERSHIP:

1. BMB3 set to Internal. Brooklyn II (BKII) Card set to External
2. BMB3 set to External Clock, BKII Card set to External
3. BMB3 set to Dante, BKII Card set to Internal

3.1 Clocking BMB3 To Internal Word Clock

1. Set BMB3 front panel to INT
2. Open Dante Controller, select DEVICE INFO
3. Double Click on device “BMB3-xxxxxx”
4. Click on CLOCK STATUS (**Image 17**)
5. Set BMB3 to “Preferred Master”, and “Enable to sync to Internal”
6. Make sure each device including host PCIe Card is set to correct

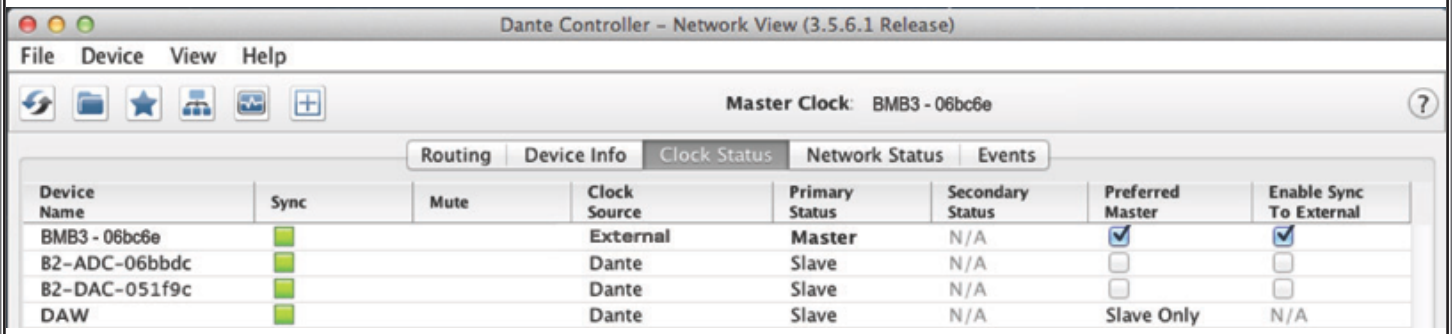
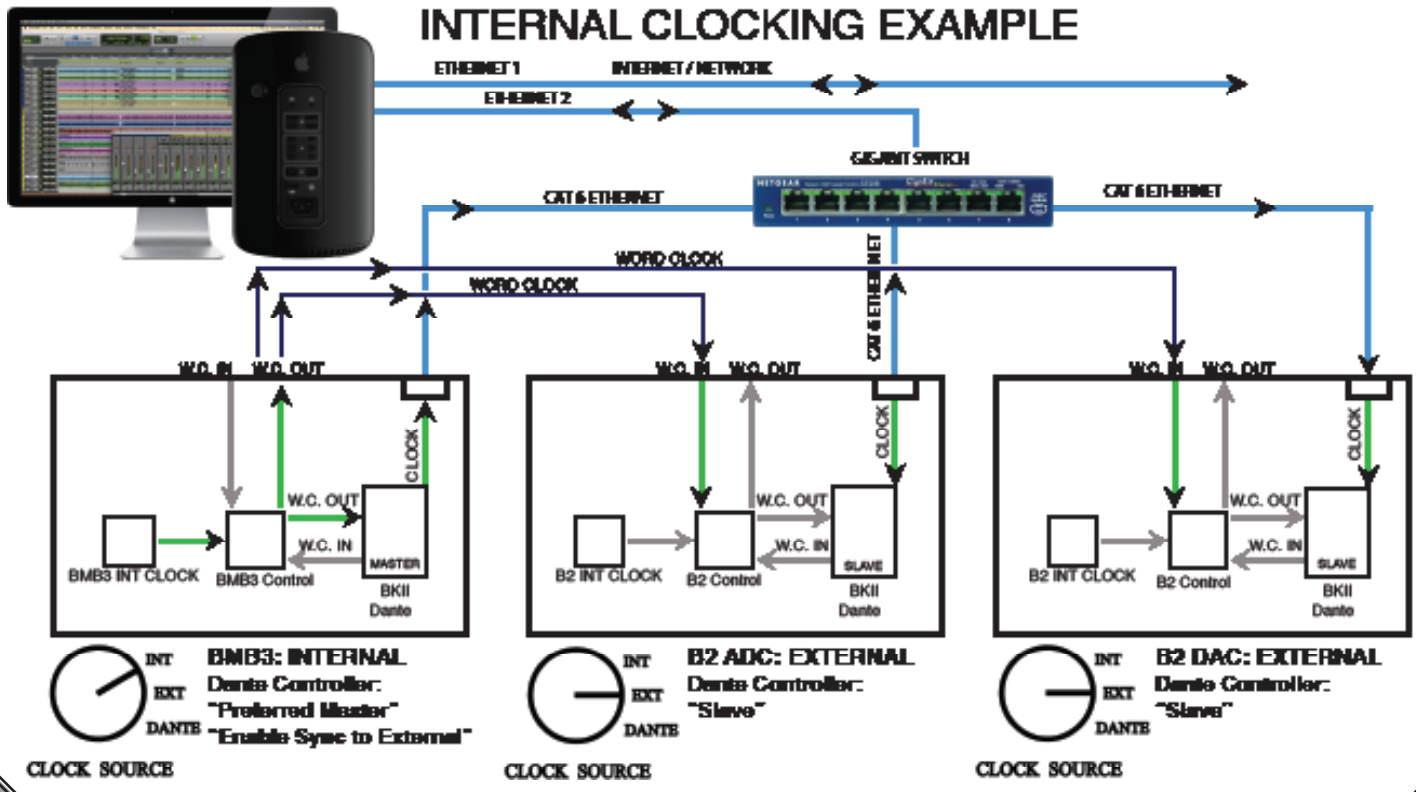


Image 17: BMB3 on Internal clock. BKII Dante Card is synced to BMB3 clock.

NOTE: “Preferred Master” refers to Dante Network, not BMB3 front panel!



3.2 Clocking BMB3 To External Word Clock

1. Set BMB3 front panel to EXT
2. Open Dante Controller, select DEVICE INFO
3. Double Click on device "BMB3-xxxxxx"
4. Click on CLOCK STATUS. (**Image 18**)
5. Set BMB3 to "Preferred Master", and "Enable to sync to External"
6. Make sure each device including host PCIe Card is set to correct sample rate in Device Config *(see 2.16 and 2.17)*

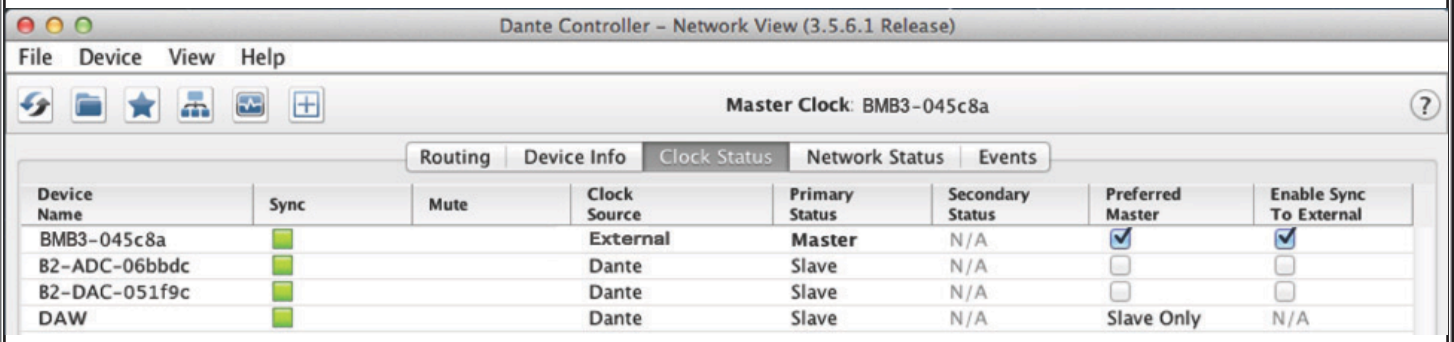
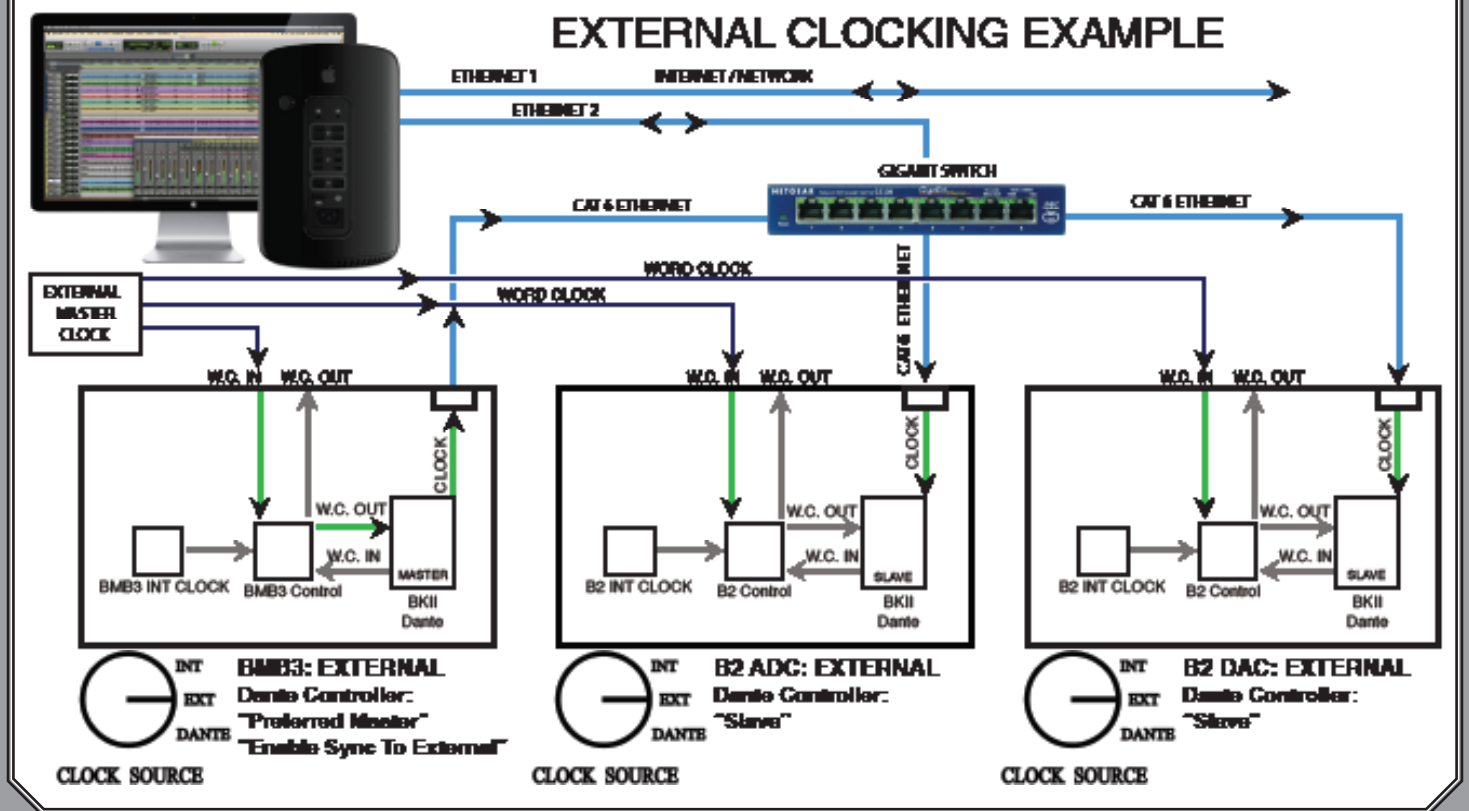


Image 18: BMB3 on External Clock. BKII Dante Card is also synced to External clock.



3.3 Clocking BMB3 To Dante

1. Set BMB3 front panel to DANTE
2. Open Dante Controller, select DEVICE INFO
3. Double Click on device "BMB3-xxxxxx"
4. Click on CLOCK STATUS. (**Image 19**)
5. Set BMB3 to "Preferred Master", and *deselect* "Enable to sync to External"
6. Make sure each device including host PCIe Card is set to correct sample rate in Device Config *(see 2.18)*

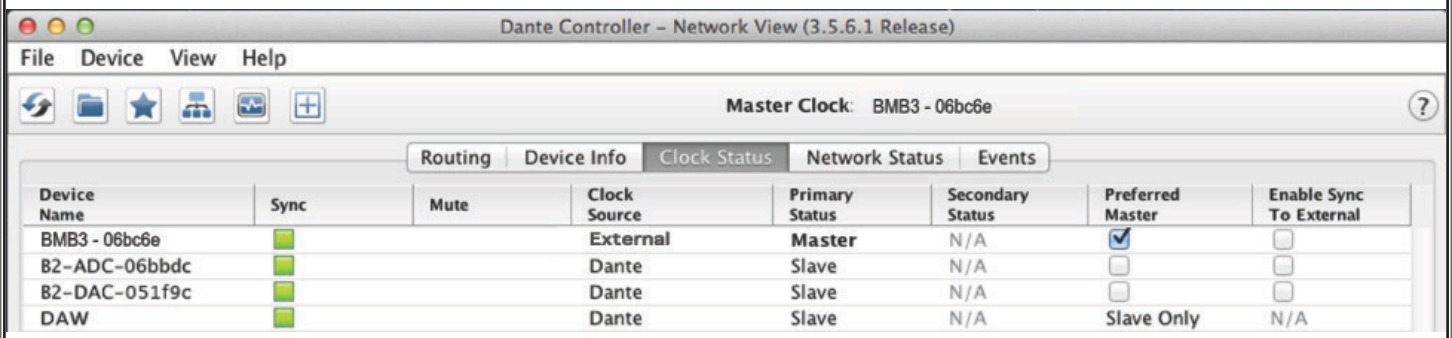
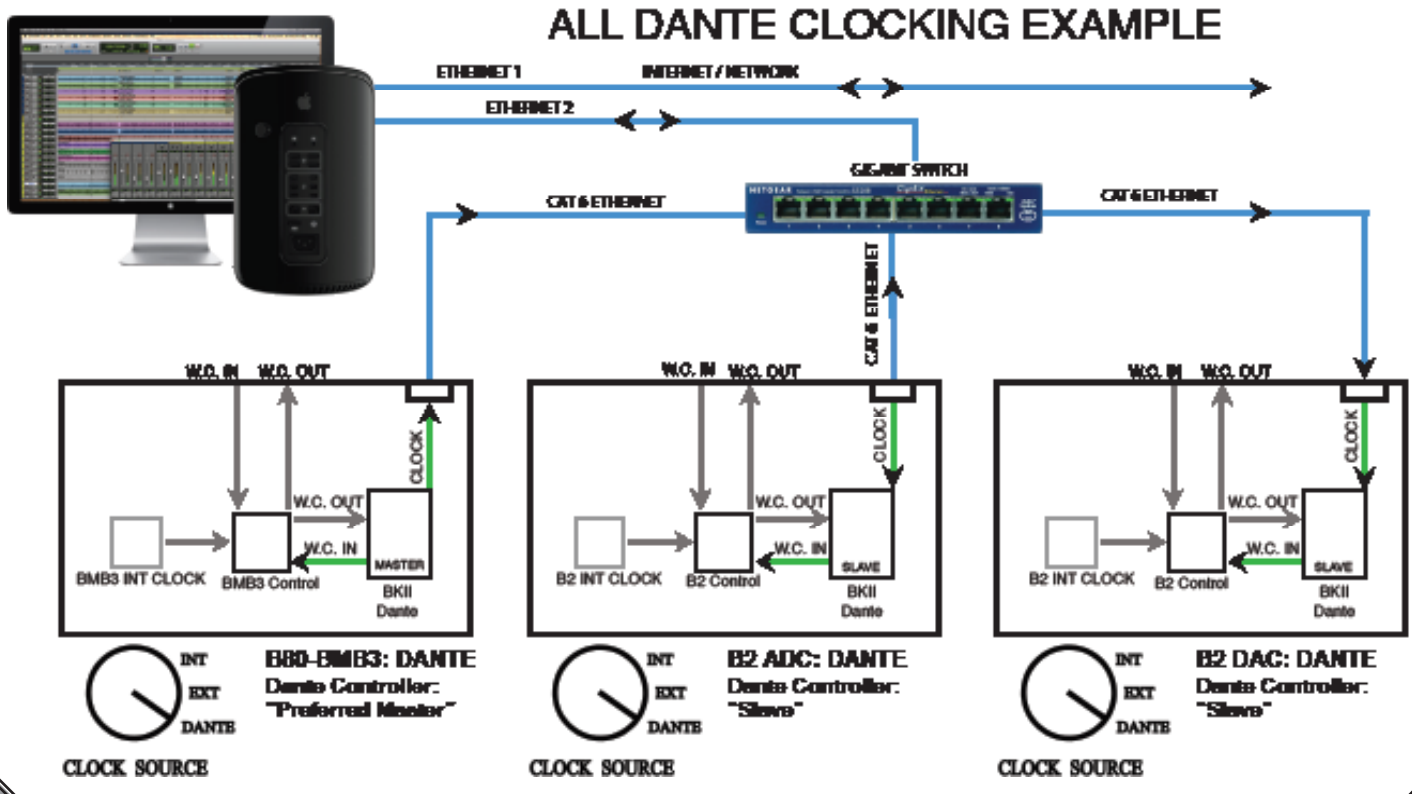



Image 19: BMB3 on Dante Clock. BKII Dante Card is also synced to Dante clock.