



WSG-HD Waves SoundGrid Option Card Installation

The WSG-HD Waves SoundGrid Option Card for the VENUE | E6L engine lets you integrate Waves SoundGrid with your Avid® VENUE | S6L system.

⚠ *Installing WSG-HD cards in your E6L engine requires VENUE software 5.7 or higher. E6L-112 engines require VENUE software version 6.0 or higher. Make sure you have installed the required version of VENUE software on both the S6L control surface and E6L engine before proceeding with this installation.*

Installing an Option card in E6L-192 or E6L-144 consists of the following steps:

- Acquiring the required materials
- Removing the E6L engine core
- Removing AVB-192 Network Cards
- Replacing the Back Bracket and Option Card Bracket
- Installing the WSG-HD Card
- Re-installing AVB-192 Network Cards
- Replacing hardware
- Confirming Installation

E6L-112 installation varies slightly from the steps listed above, as noted throughout this guide.

💡 *Images shown in this guide (such as cable colors or hardware configuration) may not exactly match your E6L.*

Required Materials

Included:

- 1x WSG-HD Card
- 1x 6-inch Ethernet cable, for internally connecting cards
- 1x replacement Back Bracket
- 1x replacement Option Card Bracket
- 1x replacement faceplate for E6L-112 (only)

Not Included (must be acquired separately):

- Phillips #2 screwdriver (not included), 12-inch recommended
- Anti-Static wrist strap (not included)
- Foam or other soft surface to place the card on
- Table or other flat work surface strong enough to support the E6L Engine Core

Removing the E6L Engine Core

WSG-HD cards are installed in the E6L engine core, which slides out of the E6L chassis.

To remove the E6L engine core

- 1 Put on your anti-static wrist band and configure it according to its instructions.
- 2 Shut down your system, and disconnect any cables connected to your E6L engine.
- 3 Place your E6L on a table or other flat surface that provides enough room for the E6L engine core to be removed comfortably. Make sure your surface is clear of any debris.

💡 *If your E6L engine is installed in a rack and there is enough room inside the rack to access the inside of the core, instead of completely removing the core you can slide it out until it catches, and then proceed with installation.*

- 4 On the back of the E6L, loosen the four thumbscrews that secure the core to the engine chassis.

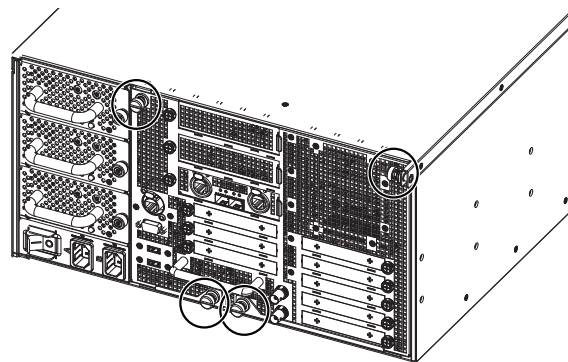


Figure 1. Four thumbscrews on the back of the E6L

- 5 Simultaneously pull the two bottom thumbscrews outward so the latches they are attached to are fully extended, as shown in Figure 2.

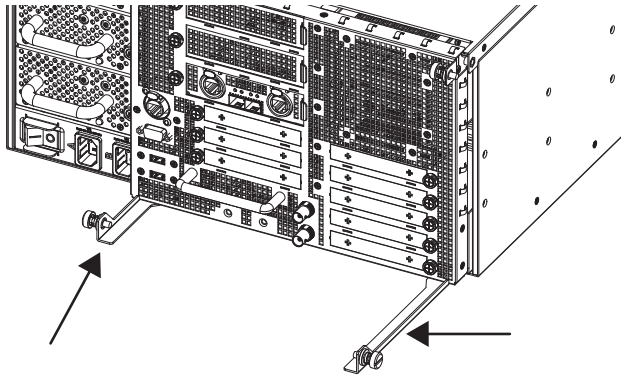


Figure 2. Latches fully extended

- 6 Using the handle, slowly slide the core partially out, locate the interior catch on the right side of the tray, and press it to release the core from the chassis.

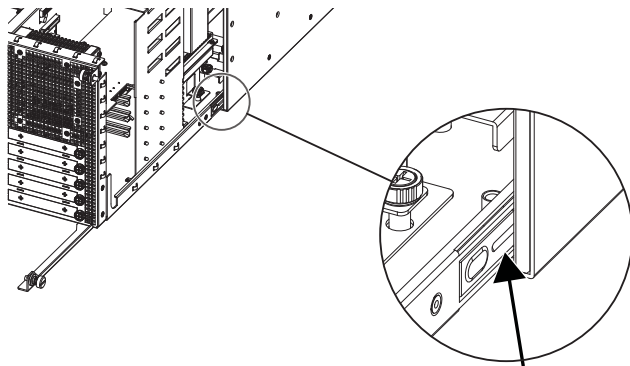


Figure 3. Location of the interior catch

- 7 Slowly slide the core out of the E6L chassis completely, and place it on your work surface.

⚠ The core will not slide out of the E6L chassis until the latches are fully extended and the catch has been released.

Remove AVB-192 Network Cards

E6L-192 and E6L-144 Only

Before installing a WSG-HD Card in an E6L-192 or E6L-144, all AVB-192 Network Cards must be temporarily removed.

If you are installing into an E6L-112, skip to “E6L-112” on page 6.

To remove AVB-192 Network Cards:

- 1 On systems with two AVB-192 Network Cards, disconnect the short Ethernet cable that connects the upper AVB-192 Network Card (slot 2/middle) to the lower AVB-192 Network Card (slot 1/lower). Set the cable aside (you will re-install it later).
- 2 Disconnect all cables connected to the AVB-192 Network card in slot 1/Master.
 - Disconnect the small power cable assembly at left from its connector on the AVB-192 card. Use your thumb to depress the catch, then pull to disconnect the cable.
 - Disconnect the Ethernet cable that connects the E6L to the AVB-192 card.



Figure 4. AVB-192 cables to disconnect (Master AVB-192 shown)

- 3 With all cables removed, loosen the exterior captive thumbscrew that secures the faceplate of the Network card to the E6L. (On systems with two AVB-192 Network Cards, start with the “top” card (in slot 2)).



Figure 5. Loosening the exterior thumbscrew

- 4 Using a #2 Phillips screwdriver, loosen the rear bracket captive thumbscrew that secures the back of the AVB-192 Network card to the chassis.

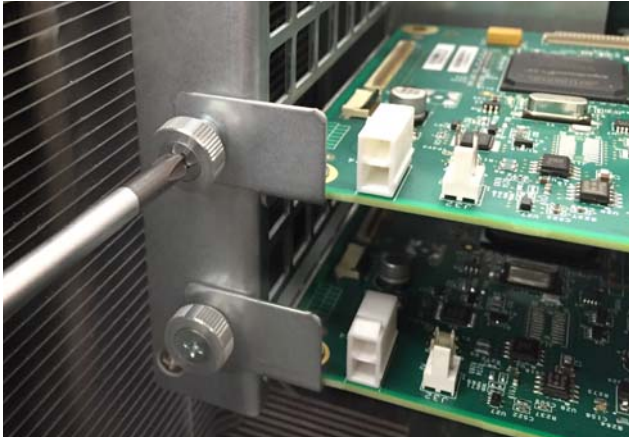


Figure 6. Loosening a rear bracket thumbscrew

- 5 Release the AVB-192 card from its PCIe slots by doing the following (when two AVB-192 cards are present, start with the upper card):
 - With one hand, lift the tab on the retaining clip to release the card from its clip.
 - With your other hand, pull the card out of its PCIe port.



Figure 7. Lifting the tab using a thumb and disconnecting the AVB-192 card from its PCIe slot

- 6 Slowly lift the back of the card upwards along the bracket (you might need to use your other hand to pull the bracket back slightly so the card can clear its guide slots).



Figure 8. Removing an AVB-192 card

- 7 Carefully remove the card from the core and set it aside.
- 8 On systems with two AVB-192 Network Cards, repeat the previous steps for the lower AVB card.

Replace the Back Bracket and Remove the Option Card Bracket

The WSG-HD Card package includes one Back Bracket and one Option Card Bracket.

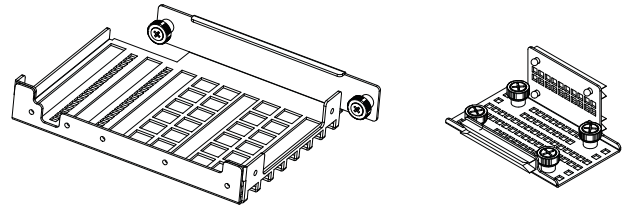


Figure 9. Back Bracket (left) and Option Card Bracket (right)

Back Bracket Not all E6L Engines will require the new Back Bracket.

- If your E6L-192 or E6L-144 Engine Core has the original Back Bracket (shown below), you must replace the old bracket with the included new Back Bracket. Note that the original bracket has only three receivers for card-retaining thumbscrews, while the new bracket has five.

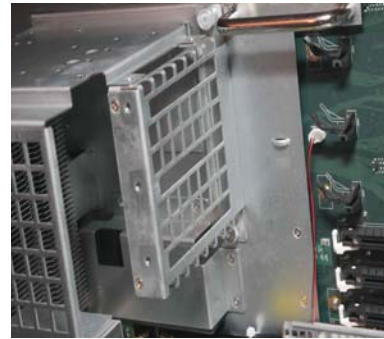


Figure 10. Original back bracket

- If your E6L Engine Core already has the newer Back Bracket, and/or you are installing the WSG-HD card into an E6L-112, skip to “Install the WSG-HD Card” on page 5.

Option Card Bracket Not all E6L Engines will require the new Option Card Bracket.

- If you are installing the WSG-HD card into an E6L-192 or E6L-144 Engine, you must replace the original Option Card Bracket with the new Option Card Bracket included with the WSG-HD Card.
- If you are installing the WSG-HD card into an E6L-112, you do not need to install the new Option Card Bracket.

Replace the Back Bracket

To remove the old bracket:

- 1 Make sure you have removed all AVB-192 Network Cards as instructed previously.
- 2 Using a #2 Phillips screwdriver, remove the two fasteners from the top of the back bracket. Set the fasteners aside (you will use them to secure the new bracket).

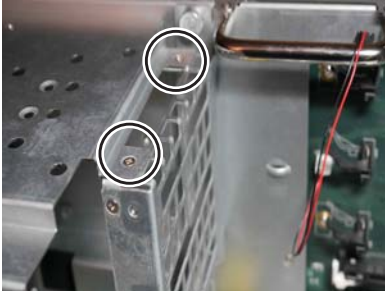


Figure 11. Top fasteners to remove from the original back bracket

- 3 Using a #2 Phillips screwdriver, loosen the two captive thumbscrews that secure the back bracket to the interior wall of the engine core.

Before loosening the second thumbscrew be sure to hold onto the bracket with your other hand to prevent it from falling onto other components.

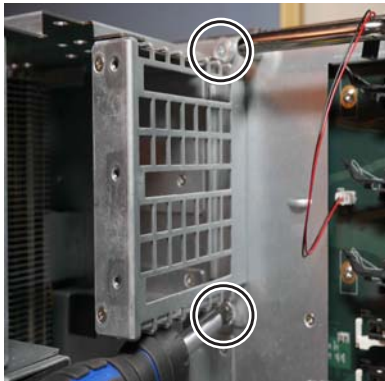


Figure 12. Removing back bracket captive thumbscrews

- 4 Remove the old bracket (it can be discarded).

To install the new back bracket:

- 1 Orient the bracket in position as shown, making sure its upper tabs are under the upper tabs on the chassis. Use your fingers to start the upper captive thumbscrew, enough to hold the new bracket in place.

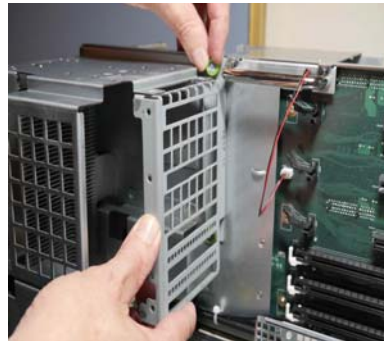


Figure 13. Positioning the new back bracket

- 2 Using a #2 Phillips screwdriver, align and insert the two captive thumbscrews on the back bracket into their threaded receivers on the inner wall of the core.

For the lower thumbscrew, a 12-inch long #2 Phillips screwdriver is recommended.

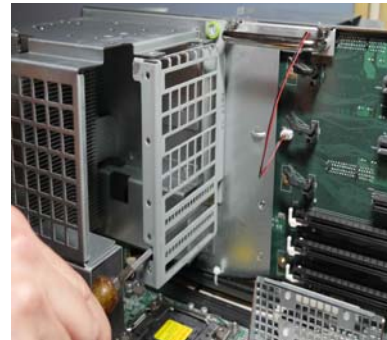


Figure 14. Securing the new back bracket

- 3 Replace the two screws to secure the top of the new bracket to the tabs on the chassis.

Replace the Option Card Bracket

To replace the option card bracket:

- 1 Using a #2 Phillips screwdriver, loosen the two captive thumbscrews that secure the bracket to the chassis.



Figure 15. Removing the original Option Card bracket

- 2 Remove the old bracket and set it aside (it can be discarded).
- 3 Position the new bracket as shown, with its two slots facing inward and its single slot facing outward, and align its captive thumbscrews with their threaded receivers on the chassis. (The new Option Card bracket is reversible to allow for future E6L option card development.)

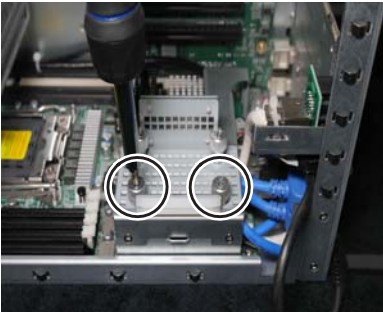


Figure 16. Installing the new Option Card bracket

- 4 Using a #2 Phillips screwdriver, tighten the thumbscrews to secure the new bracket.

Install the WSG-HD Card

WSG-HD Card installation differs depending on the type of E6L engine. Follow the instructions in the section appropriate for your E6L engine:

- “E6L-192 and E6L-144” on page 5
- “E6L-112” on page 6

E6L-192 and E6L-144

The E6L-192 and E6L-144 engine core has eight half-length PCIe slots for Option cards. When standing at the back of the E6L engine, slots 1–5 are at the lower right and slots 6–8 are in the middle (below the AVB slots) as shown in Figure 17.

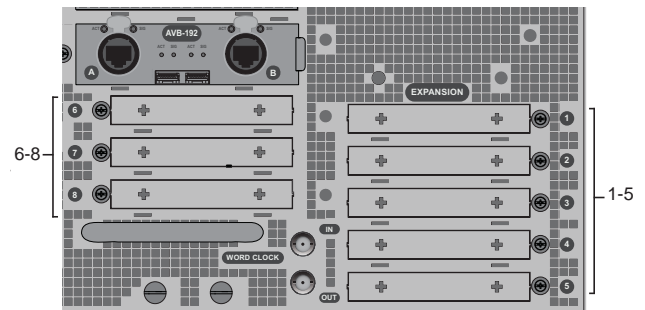


Figure 17. E6L Expansion slots 1–5 (lower right) and 6–8 (upper left)

With E6L-192 and E6L-144 engines the WSG-HD Card *must* be installed in slot 6.

To install a WSG-HD Card:

- 1 Remove the faceplate from slot 6 by loosening its captive thumbscrew and then pulling it out of the slot.

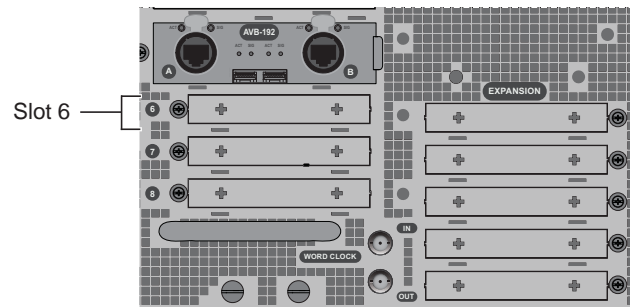


Figure 18. Slot 6 for WSG-HD Card

- Remove the WSG-HD Card from its packaging and hold it by its edges.

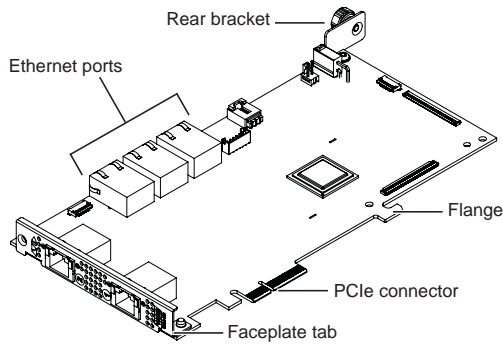


Figure 19. WSG-HD Card

- Inside the unit, place the face of the card into position in slot 6, with the back of the card tilting upwards.

⚠ Before inserting the card, make sure the red and black AVB-192 power cable is above the card and out of the way.

Using two hands, hold the front of the card in place in the slot with one hand, and slowly move the back of the card downwards along the back bracket until the card is horizontal.



Figure 20. Guiding the WSG-HD Card into position

- From the back of the core, make sure the faceplate of the Option card is correctly aligned with the open slot cover.
- Align the PCIe connector on the card with the corresponding PCIe port, and align the flange on the card with the retaining clip on the PC board.
- Applying pressure along the full length of the card, press it firmly into the PCIe port and clip. When fully seated, the retaining clip moves into its closed position.



Figure 21. Retaining clip closed, when card is fully seated

- When the card is properly seated in the slot, tighten the exterior captive thumbscrew to secure the faceplate of the card to the back panel of the E6L.

6 WSG-HD Waves SoundGrid Option Card Installation

- Tighten the rear bracket captive thumbscrew to secure the back of the card to the back bracket.



Figure 22. Securing the card to the back bracket

Later, after you have re-installed the AVB-192 Network Card(s) you will connect the WSG-HD Card.

- Proceed to “Re-Install the AVB-192 Cards” on page 8.

E6L-112

If you are installing a WSG-HD card into an E6L-112, the WSG-HD card must be installed in AVB Network slot 3.

⚠ AVB Network slot 3 is only supported on E6L-112 engines. Do not install any S6L Option cards into this slot on E6L-192 or E6L-144 engines.

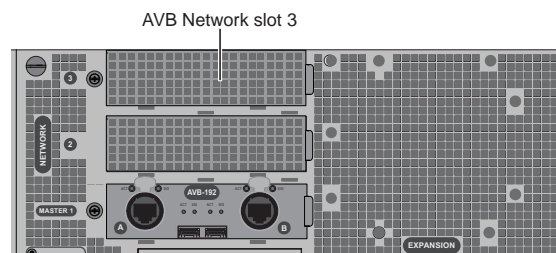


Figure 23. E6L AVB Network slot 3 (top)

The E6L-112 compatible faceplate, included with the WSG-HD card, must be installed before installing the card in AVB Network slot 3.

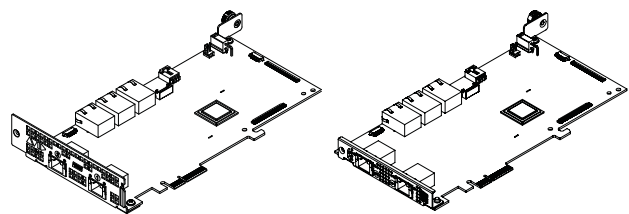


Figure 24. WSG-HD card with E6L-112 compatible faceplate (shown at left) and E6L-192/144 compatible faceplate (shown at right)

To install the faceplate for E6L-112 AVB Network slot 3:

- 1 Place the WSG-HD card on your padded work-surface face-down.

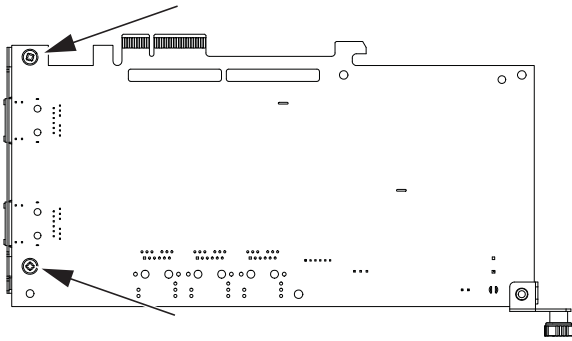




Figure 25. Underside of WSG-HD card showing fasteners to remove to replace faceplate

- 2 Using a #2 Phillips screwdriver, remove the two screws that secure the faceplate to the card. Keep the screws nearby to use to secure the new faceplate.
- 3 Remove the faceplate and set it aside.

 *Keep the faceplate in case you want to move this card into an Option card slot in the future.*

- 4 Turn the WSG-HD card over so it is face-up.
- 5 Take the new E6L-112-compatible AVB Network faceplate and place it against the WSG-HD card. Make sure it is oriented correctly and that its mounting tabs sit *below* the card.

 *This is different from how the Option slot faceplate is attached to the card; tabs on the AVB Network faceplate sit below the card and are secured from above, while those on the Option faceplate sit above the card and are secured from below.*

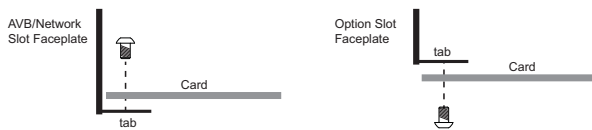


Figure 26. Orientation of faceplate, card, and fasteners for AVB Network slot 3 (shown at left) and Option card slots (at right)

- 6 Using the two screws you removed earlier, secure the faceplate to the card from the top.

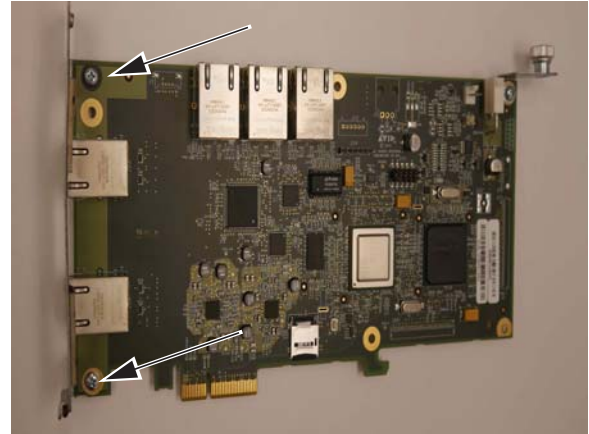


Figure 27. Top view showing fasteners to secure an E6L-112 compatible faceplate to a WSG-HD card

To install the WSG-HD card into AVB Network slot 3:

- 1 Hold the card by its edges.
- 2 Inside the unit, place the face of the card into position in the slot, with the back of the card tilting upwards.
- 3 Using two hands, hold the front of the card in place in the slot with one hand, and slowly move the back of the card downwards along the sheet metal until the card is horizontal.
- 4 Once the card is horizontal, make sure the tab on the right side of the faceplate is outside of the E6L chassis slot.
- 5 Align the PCIe connector on the card with the corresponding PCIe port, and align the flange on the card with the retaining clip on the PC board.
- 6 Lift the tab on the retaining clip, and then press the card firmly into the PCIe port and clip.



Figure 28. Lifting the tab on the retaining clip

- 7 When the card is properly seated in the slot, tighten the exterior captive thumbscrew to secure the faceplate of the card to the back panel of the E6L.
- 8 Tighten the rear bracket captive thumbscrew to secure the back of the WSG-HD card to the back bracket.



Figure 29. Securing the card to the back bracket

- Using the included Ethernet jumper cable, connect the far left port on the edge of the Master AVB-192 (in the Master AVB Network slot 1) to the far left port on the WSG-HD card.



Figure 30. Ethernet connection from WSG-HD to Master AVB-192 (E6L-112 only)

In E6L-112 Engines with 2x AVB-192 cards, cabling should look similar to the following image:

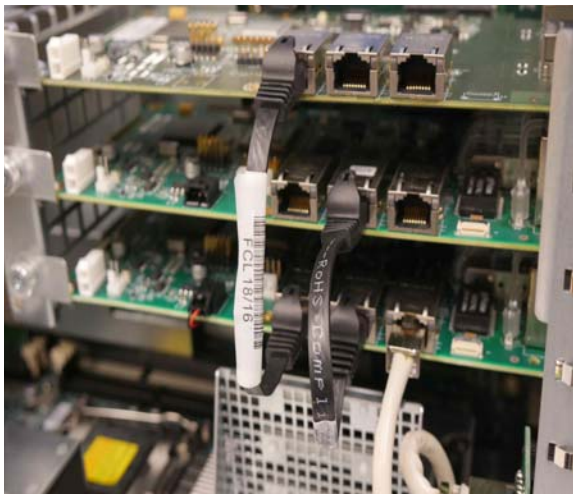


Figure 31. Ethernet connections from WSG-HD to Master AVB-192, and from Master AVB-192 to 2nd AVB-192 (E6L-112 only)

💡 Cable colors shown might not match the cables in your E6L.

- Proceed to “Re-install the E6L Engine Core” on page 11.

Additional Information

You can install either a second MADI-192 card or a WSG-HD Waves SoundGrid Option card in AVB Network slot 3 of an E6L-112 engine. You cannot have both a WSG-HD card and a second MADI-192 card installed simultaneously in an E6L-112.

If you ever want to remove the WSG-HD card from the E6L-112 and install it into Option card slot 6 of an E6L-192 or E6L-144, be sure to re-install the original Option slot faceplate.

Re-Install the AVB-192 Cards

E6L-192 and E6L-144 Only

After installing a WSG-HD card into an E6L-192 or E6L-144, re-install AVB-192 Network Card(s) in the following sequence:

- Master 1 (lowest) slot
- Slot 2 (if re-installing a second AVB-192 Network Card)

To re-install the Master AVB-192 card:

- Making sure the red and black power cable is safely clear (above the card), place the face of the card into position in its slot (the lowest slot 1/Master AVB slot) with the back of the card tilting upwards.
- Slowly move the back of the card downwards along the sheet metal until the card is horizontal.

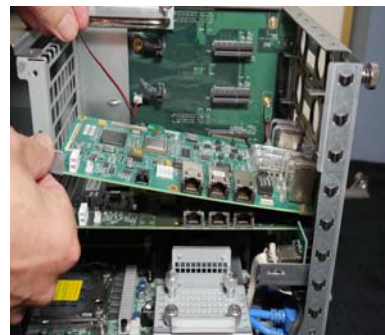


Figure 32. Lowering the AVB-192 card into position while keeping the power cable clear

- Once the card is horizontal, make sure the tab on the faceplate of the Network card is positioned on the outside of the slot.
- Align the PCIe connector on the card with the corresponding PCIe port, and align the flange on the card with the retaining clip on the PC board.
- Lift the tab on the retaining clip and press the card firmly into the PCIe port and clip.

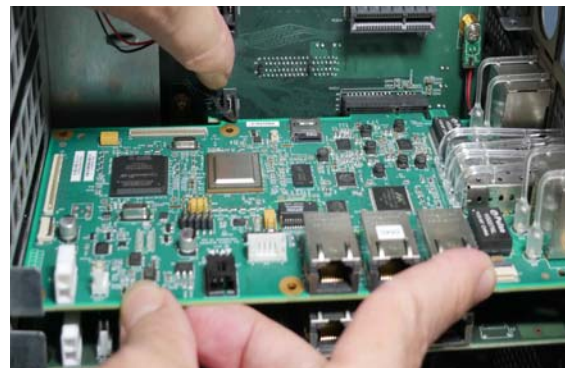


Figure 33. Inserting the AVB-192 card into its PCIe port

- When the card is properly seated in the slot, tighten the exterior captive thumbscrew to secure the faceplate of the card to the back panel of the E6L.

- 7 Tighten the rear bracket captive thumbscrew to secure the back of the card to the back bracket.

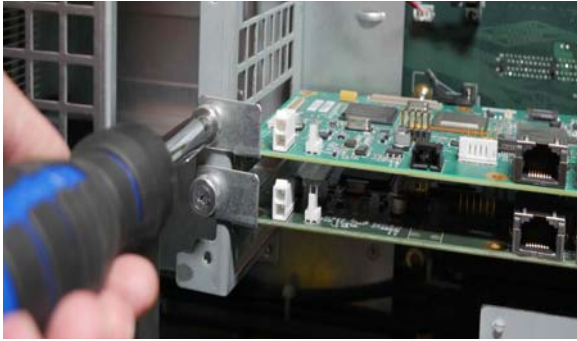


Figure 34. Securing the AVB-192 card to the back bracket

- 8 Re-connect the red and black power cable to the AVB-192 card.

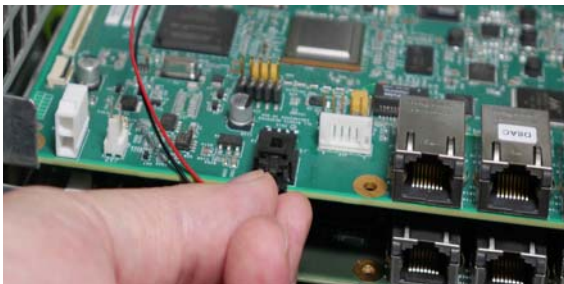


Figure 35. Re-connecting the Master AVB-192 power cable

- 9 Re-connect the Ethernet cable from the E6L to the right-most port on the AVB-192 card.



Original factory cabling may vary. Follow the instructions in this guide to achieve the recommended cabling scheme.

- 10 Using the included Ethernet jumper cable, connect the far left port on the edge of the AVB-192 card to the far left port on the WSG-HD card.



Figure 36. Ethernet connection from WSG-HD to Master AVB-192 (E6L-192 or E6L-144 only)



Cable colors shown might not match the cables in your E6L.

- 11 If your E6L only has a single AVB-192 Network Card, proceed to “Re-install the E6L Engine Core” on page 11.
- 12 If your E6L has two AVB-192 Network Cards, re-install the second card as explained in the following instructions.

To re-install a second AVB-192 Network card (if any):

- 1 Inside the unit, place the face of the card into position in the slot, with the back of the card tilting upwards.



Figure 37. Placing the card into position inside the engine

- 2 Using two hands, hold the front of the card in place in the slot with one hand, and slowly move the back of the card downwards along the sheet metal until the card is horizontal.

- 3 Once the card is horizontal, make sure the tab on the faceplate of the Network card is positioned on the outside of the slot.



Figure 38. Proper position of the Network card faceplate tab

- 4 Align the PCIe connector on the card with the corresponding PCIe port, and align the flange on the card with the retaining clip on the PC board.

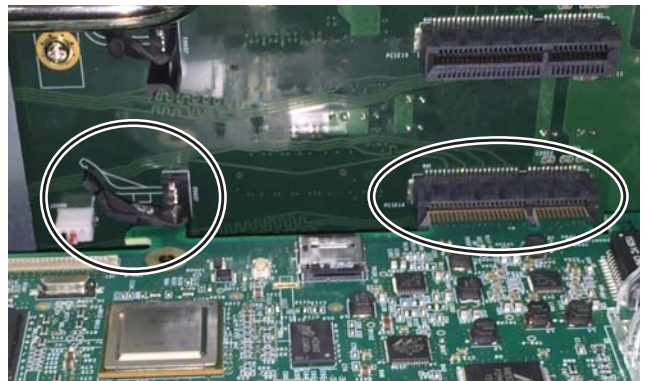


Figure 39. Aligning the and the PCIe connector to the port (right) and the card flange to the retaining clip (left)

- 5 Lift the tab on the retaining clip, and then apply pressure along the entire edge of the card to press it firmly into the PCIe port and clip.



Figure 40. Lifting the tab on the retaining clip



Figure 41. The Network card PCIe connector properly seated in the PCIe slot

- 6 Tighten the exterior captive thumbscrew to secure the face-plate of the Network card to the E6L.



Figure 42. Tightening the exterior thumbscrew

- 7 Tighten the rear bracket captive thumbscrew to secure the back of the card to the chassis.

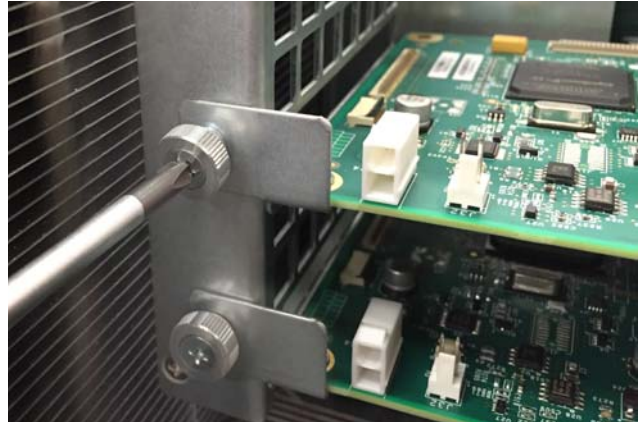


Figure 43. Tightening the rear bracket thumbscrew

- 8 Connect the Ethernet jumper cable from the middle port on the lower Master AVB-192 card to the middle port on the upper AVB-192 card.

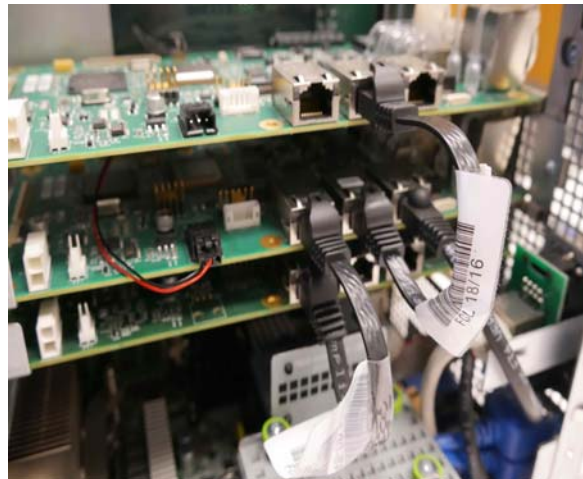


Figure 44. Ethernet cable connected between cards (E6L-192 or E6L-144 only)

Re-install the E6L Engine Core

- 1 Slide the core back into the E6L chassis, making sure the connectors face outward.

When the core is fully seated into the chassis, the two latches at the bottom of the chassis should be fully collapsed.

- 2 Tighten the four thumbscrews to secure the core to the chassis.

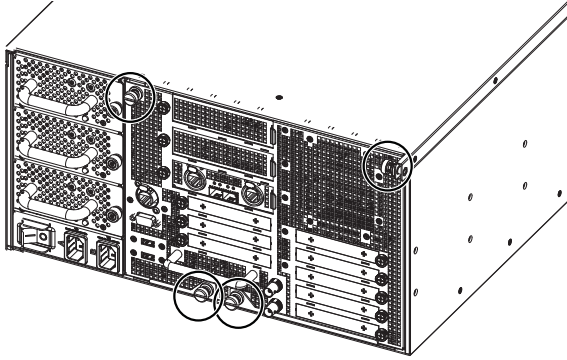


Figure 45. Four thumbscrews on the back of the E6L

- 3 Proceed to “Confirming Installation.”

Confirming Installation

After installing the WSG-HD card, confirm that the installation was successful.

- ⚠** With E6L-192 and E6L-144, VENUE software version 5.7 or higher is required. E6L-112 requires VENUE software version 6.0 or higher.

To confirm installation:

- 1 Connect power to the E6L engine, and connect audio network cables from the S6L control surface to the E6L engine (see the *VENUE S6L Installation Guide.pdf* for connection details).
- 2 Power on your control surface and engine, and if necessary pair the engine to the control surface.
- 3 Go to the Options > Devices page. Your newly installed WSG-HD card should appear in the appropriate slot in the Expansion Cards column.

If the newly installed WSG-HD card does not appear in the Options > Devices page, make sure VENUE 5.7 or higher is installed on your system.

- 4 For software installation and firmware update instructions see the *SoundGrid for VENUE Systems.pdf* from Waves.com.

For more information on configuring and using the WSG-HD Card to integrate Waves SoundGrid with your VENUE S6L system, see the *VENUE S6L System Guide.pdf*.

