

User Upgrade of an Aurora(n) Mastering Converter

12/22/2022

If you are reading this you are likely the owner of an Aurora⁽ⁿ⁾ mastering converter. Congrats, and *thank you!*

One of the unique benefits of the Aurora⁽ⁿ⁾ is its ability to be expanded and upgraded after the fact. Channels can be added, I/O types added or changed, computer connection methods changed, etc. Some of these upgrades do need to be performed by Lynx or by a Lynx Custom Shop Integrator. However, there are some upgrades that can be done in the field by an end-user or technician. That process is what we will explore in this document.

It is important to understand that there is some liability for the user with this process. **If a card is installed incorrectly, it can not only damage the upgrade module, but the Aurora mainboard itself. Such damage would not be covered by the warranty and can be quite expensive.** If, after reading through this document, you would rather not risk it, please look into having a qualified technician do the process, OR, you can always send the Aurora in to the Lynx factory in California, and we will install the module for free, upgrade the firmware if necessary, and run the unit through our production tests. You have options!

What upgrades can be done:

Not all module installations can be done by an end-user. Some need to be sent to the Lynx factory. Any upgrades involving our LM-PRE4 preamp module, or the DB-ADAT module will need to be done by Lynx or one of our Custom Shop Integrators

There are 4 Card Slot positions on an Aurora⁽ⁿ⁾, pictured here. User installation can be done in slots 1, 3, and 4. Slot 1 requires a mezzanine card that needs to be installed by Lynx so that installation is a bit trickier. Slot 2 is generally already occupied. Please note that the 4 card slots, word clock module and LSlot computer modules are all held in place by three cover plates. For instance, card slots 1+2 have a single plate for both cards. This is why it is so important that your expansion card is shipped with the correct cover plate for your configuration.



Adding the LM-DIG AES module is always in Card slot 4. The LM-A4 /A24 can be installed in either slot 4 or slot 1, depending on the existing configuration. Analog modules can go in slot 3 (when upgrading from 8 channels to 16), or in slot 4 (upgrading from 16 channels to 24), or in slot 1 (when upgrading to 32 channels or 24 + Dig.

What do you need?

To add an analog or Digital module you will need the following tools:

- #1 Phillips head screw driver
- A 3/16" nut driver (drill bit or standalone)

- Ground strap
- Anti-static gloves
- Wire cutters (slot 1 installation only)
- Needle Nose pliers (for LM-A4 or LM-A24 installation only)

The Aurora should be on a flat, anti-static surface with good light. It will remain disconnected from AC for this process.

Installing into slot 3

Installing a card in slot 3, is for turning an 8 channel Aurora⁽ⁿ⁾ into a 16 channel unit. It is only an 8-channel analog card that would go here, never the LM-DIG AES card or LM-A4/A24.

What was included with your Aurora module

Verify that you have the following elements before proceeding:

- 1) The appropriate cover plate labeled with the correct channel numbers for your upgrade. Note: you will need to remove the cover plate before installing the card.
- 2) Silver 4-40 LOCKING MACHINE SCREWS, and 4 DSUB jack screws.



There are 12 steps for this installation

<p>1.</p> <p>Remove the 6 screws that hold the lid to the chassis and remove the top lid. Please note: sometimes the lid screws are held very tightly by the lid paint. It is easy to strip these screws. Use a very sharp Phillips screwdriver and loosen by hand, rather than using a drill.</p>	
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<p>2.</p> <p>Remove the 2 screws in between the wordclock connectors and set aside.</p>	
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3.

Pull the wordclock circuit board out of the holes but leave the ribbon cables connected on the inside of the Aurora.



4.

Remove the cover plate and set its 4 screws aside.

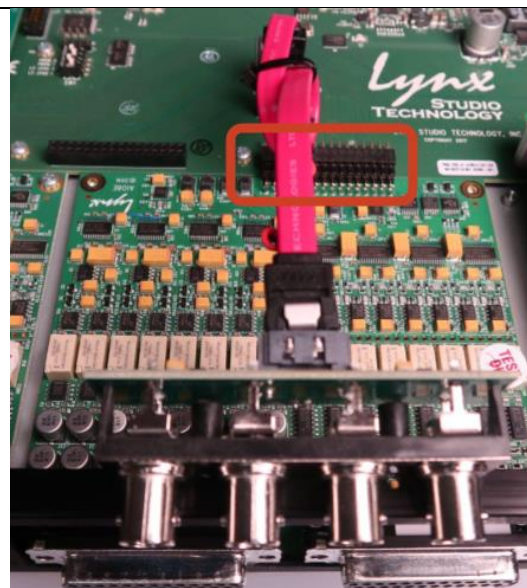


5.

Ground the pins of the new module to the bottom of the chassis before installation

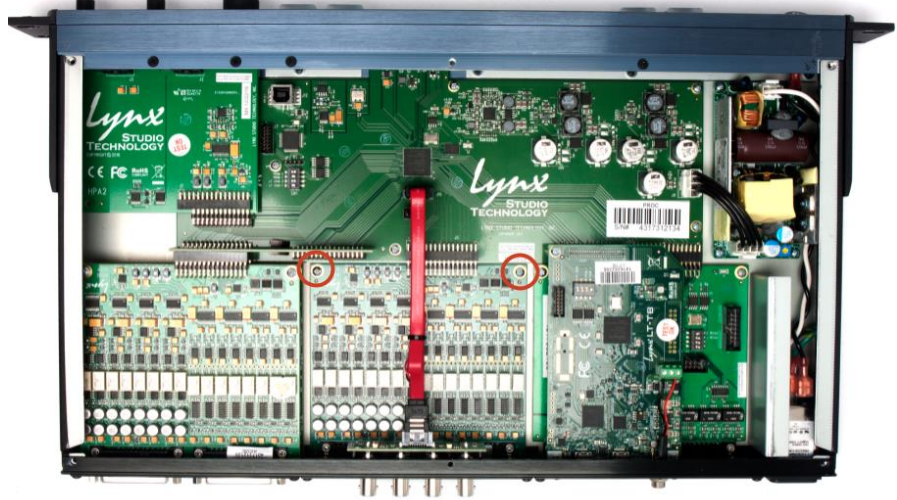
6.

Mount the new module internally, make sure that the pins align correctly. Do not force it. Note: the cover plate must be removed from the upgrade card BEFORE installing it into the Aurora.



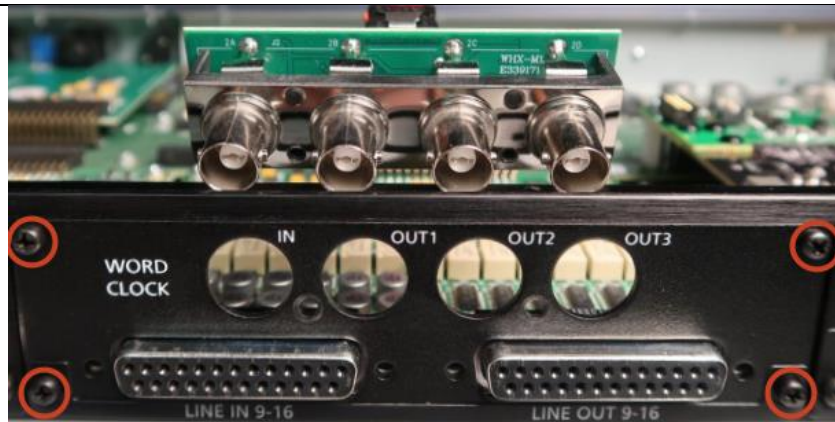
7.

Insert the 2 included machine screws holding the LM-AIO8E to the mainboard. DO NOT TIGHTEN.



8.

Attach the cover plate to the chassis with the 4 screws from step 4.



9.

Put the wordclock connectors through holes. Reattach with the two screws from step 2.



10.

Insert jack screws next to the D-Sub connectors using the 3/16" nut driver. Be careful to not overtighten, as the heads can break off.



11.
Tighten all screws including internal ones.

12.
Replace the lid.

Refer to the Lynx Website to verify the build. Go to lynxstudio.com/custom-shop, and put in your configuration and make sure that back panel you see matches your upgraded unit.
 For instance, a 16 channel TB3 unit would look like this:



Now connect AC, turn on the Aurora, and check ABOUT page to verify that the new I/O is listed.
 Restore defaults, by pressing the SELECT button while on the ABOUT page, and following the prompts.

Installing into Slot 4

This can be for adding analog channels 17-24, adding an LM-DIG card, or adding an LM-A4/A24 card.
 Note: if you have 8 line channels + the LM-DIG or LM-A4/A24, there would be nothing in slot 3.

What was included with your Aurora module

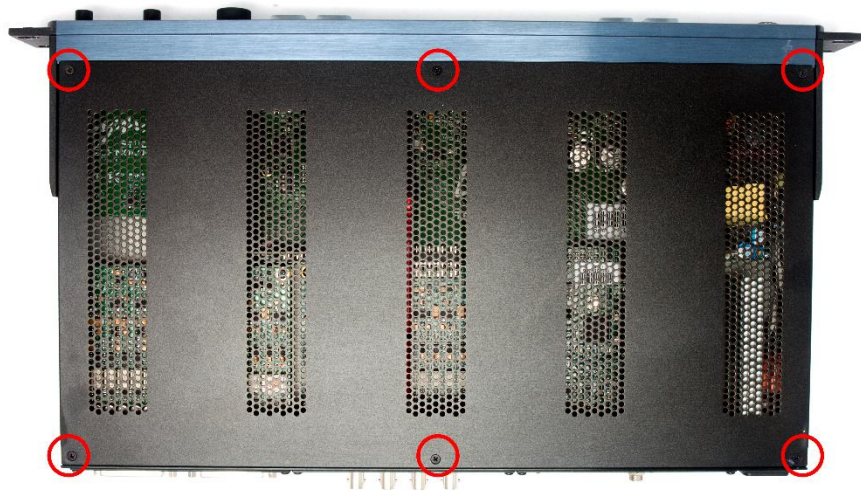
- Verify that you have the following elements before proceeding:
- 1) The appropriate cover plate labeled with the correct channel numbers for your upgrade. Note: you will need to remove the cover plate before installing the card.
 - 2) Silver 4-40 LOCKING MACHINE SCREWS
 - 3) 4 DSUB jack screws. If installing an LM-A4/A24, instead of D-Sub jack screws, you will have washers and nuts for each ¼" jack.



There are 16 Steps for this installation

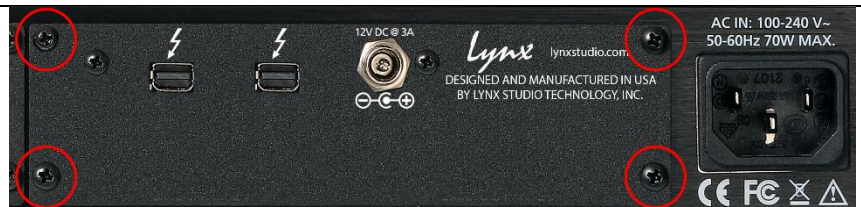
1.

Remove the 6 screws that hold the lid to the chassis and remove the top lid. Please note: sometimes the lid screws are held very tightly by the lid paint. It is easy to strip these screws. Use a very sharp Phillips screwdriver and loosen by hand, rather than using a drill.



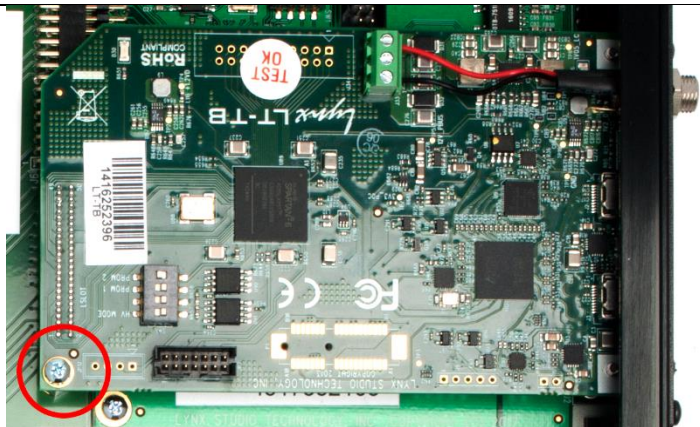
2.

Remove the back panel bracket and set the screws aside.



3.

Remove the screw attaching the back corner of the LSlot card to a standoff. This can be an LT-TB(3), LT-HD(2), LT-USB or LT-DANTE.



4.

Rock the LSlot card from side to side to detach it from the multi-pin connector on the mainboard. Gently pull it out through the back opening.

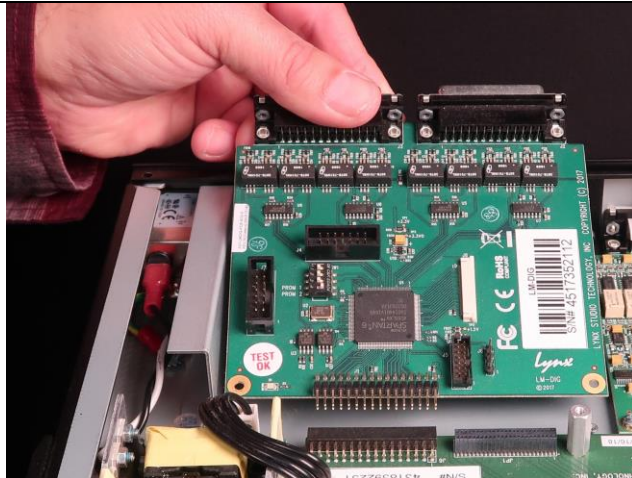


5.

Ground the pins of the new module to the bottom of the chassis before installation

6.

Mount the new module internally, make sure that the pins align correctly. Do not force it. Note: the cover plate must be removed from the upgrade card BEFORE installing it into the Aurora.



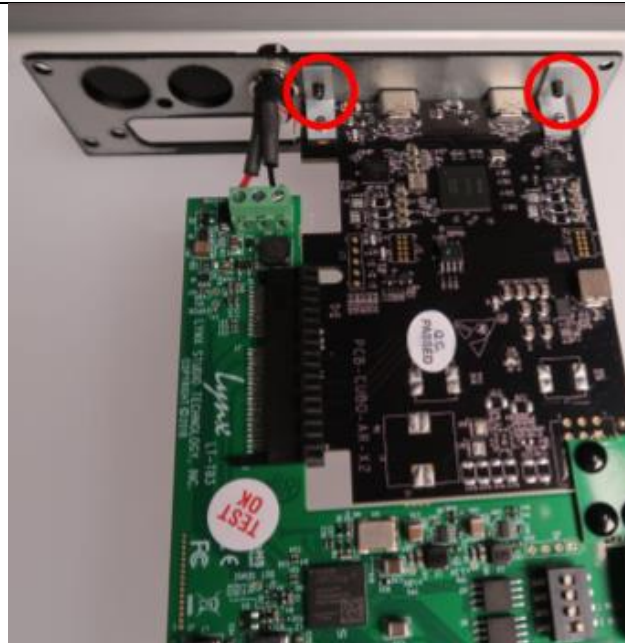
7.

Insert the 2 included machine screws holding the LM-AIO8E, LM-DIG, or LM-A4/A24 to the mainboard. DO NOT TIGHTEN.



8.

Remove the LSlot card from its old bracket. This can vary by card type, pictured is an LT-TB3 (thunderbolt) card which is the most complex as it has a nut and washer for the power connector. If you have a different type of LSlot card, it will be simpler.



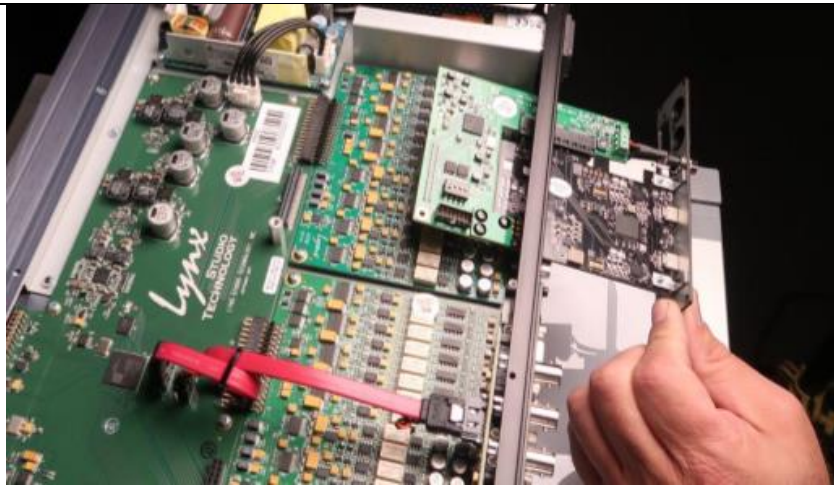
9.

Mount LSlot card in the new bracket. Replace washer and nut if using an LT-TB3 card. Keep screws loose until it's perfectly aligned, and then tighten the screws.



10.

Insert into the opening on the back of the Aurora at an angle.



11.

Press the multi-pin connector at the back of the card into the mating receptacle on the mainboard.



12.

Screw the LSlot card into the standoff with the screw that was removed in step 3. Do not tighten.



13.

Attach the cover plate to the chassis with the 4 screws from step 2.



14.

Insert jack screws next to the D-Sub connectors using the 3/16" nut driver. Be careful to not overtighten, as the heads can break off. With an LM-A4/A24 card, instead of jack screws tighten the washers and nuts onto each 1/4" jack.



15.

Tighten internal screws.

Replace the lid.

Refer to the Lynx Website to verify the build. Go to lynxstudio.com/custom-shop, and put in your configuration and make sure that back panel you see matches your upgraded unit.

For instance, a 24 channel TB3 unit would look like this:



Now connect AC, turn on the Aurora, and check ABOUT page to verify that the new I/O is listed. Restore defaults, by pressing the SELECT button while on the ABOUT page, and following the prompts.

Installing into slot 1

Installing a card in slot 1, is for a handful of situations:

- Upgrading to 32 channels
- Upgrading to 24channels + an LM-DIG
- Adding an LM-A4 or LM-A24 monitoring card to a 24 channel unit, or one with 16 + LM-Dig. Also when adding an LM-A4/A24 to a unit with an LT-Dante or LT-HD2.
- Expanding a system with an LM-PRE4, where slots 2 and 4 are already occupied

This position requires the installation of a mezzanine board, so it is a bit trickier than the other installations. Please review the instructions carefully before proceeding.

What was included with your Aurora module

Verify that you have the following elements before proceeding:

- 1) The appropriate cover plate labeled with the correct channel numbers for your upgrade. Note: you will need to remove the cover plate before installing the card.
- 2) 4 DSUB jack screws for an LM-AIO8E, or washers and nuts for an LM-A4 or LMA24.
- 3) 2 0.600" metal standoffs
- 4) A plastic cable tie mount and a cable tie
- 5) A mezzanine circuit board



Failure to follow this installation procedure precisely may cause irreparable harm to your Aurora(n). If you are not comfortable performing this procedure please contact Lynx technical support to arrange for a factory installation.



Do not overtighten the D-Sub jack screws. Doing so may cause the head to break off.



There are 15 Steps for this installation

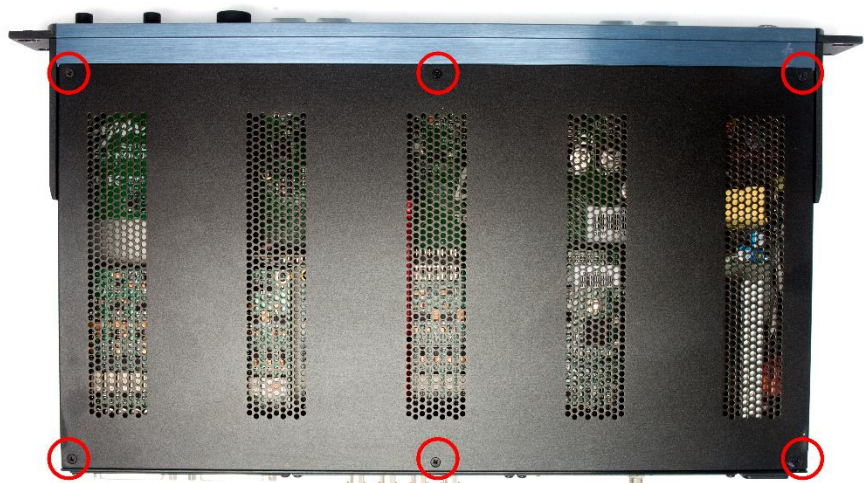
1.

Check the space in slot 1, above the existing D-Subs for channels 1-8. If there is a serial number sticker there, it will need to be moved. Heat the area with an iron or some other steam source, carefully remove the serial number sticker, and place it on the top lid in the middle, towards the back, as shown.



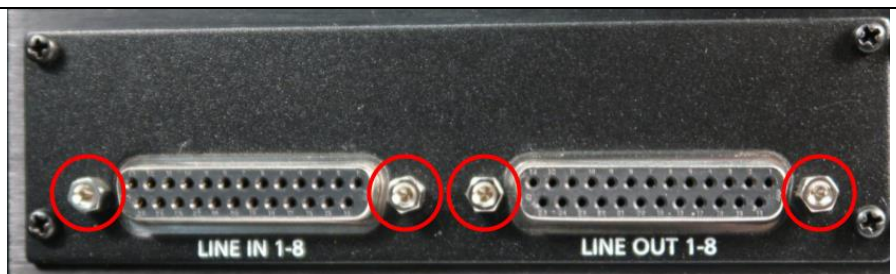
2.

Remove the 6 screws that hold the lid to the chassis and remove the top lid. Please note: sometimes the lid screws are held very tightly by the lid paint. It is easy to strip these screws. Use a very sharp Phillips screwdriver and loosen by hand, rather than using a drill.



3.

Remove the Jack Screws for the D-Sub Connectors of the card in slot 2



4.

Remove the 4 screws on the cover plate and set aside.



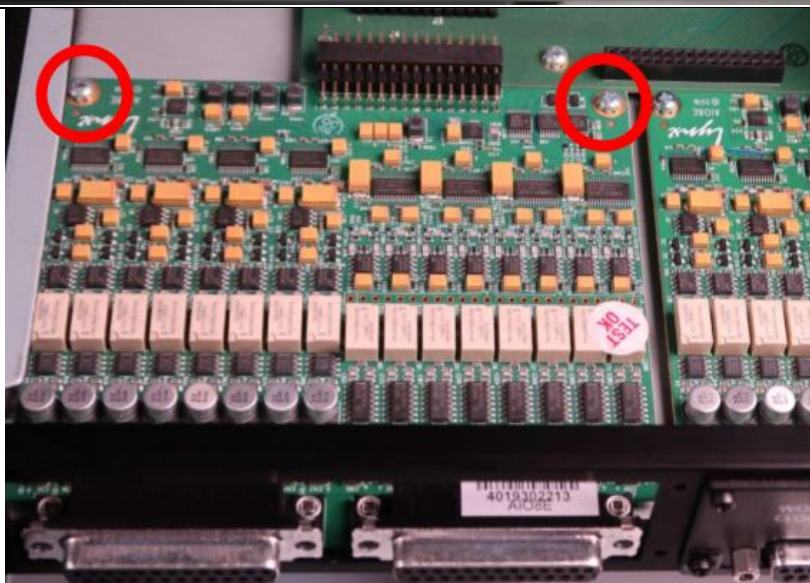
4.

Remove the back panel.



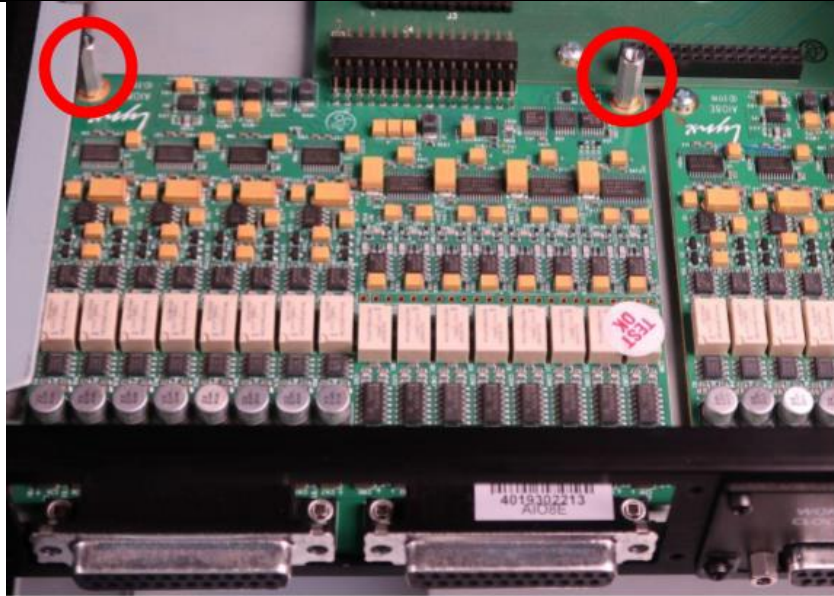
5.

Remove the two screws in the back corners of the module in slot 2. Put these screws aside, you will need them again.



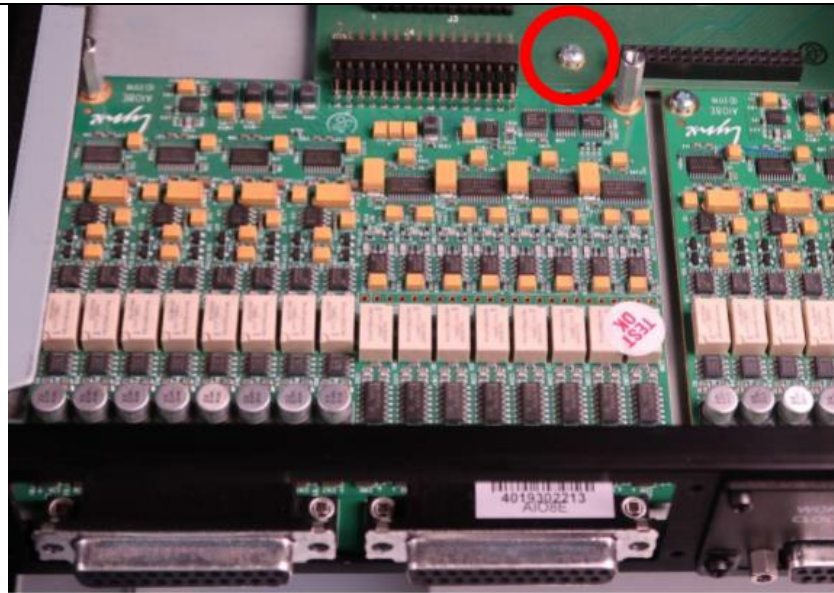
6.

Insert and tighten the two 0.600" metal standoffs into the holes vacated in the previous step.



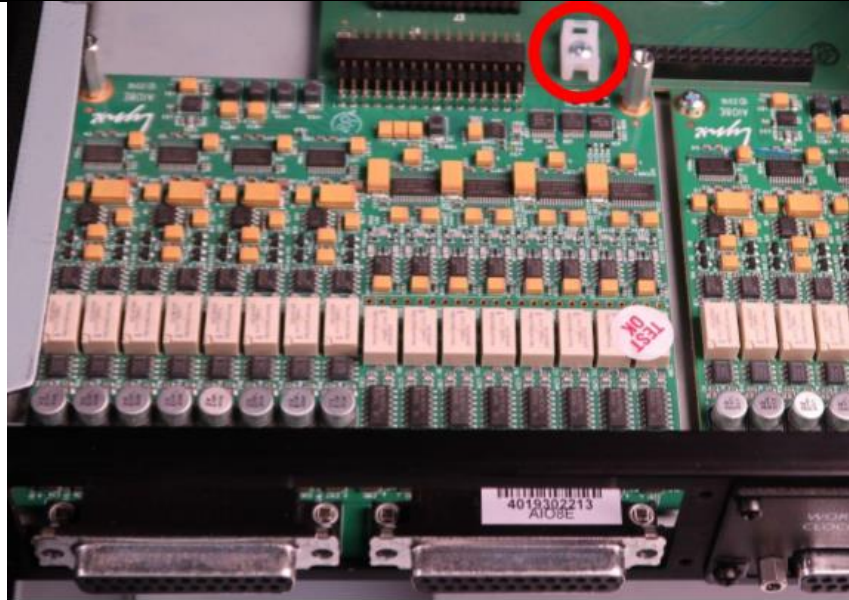
7.

Remove the screw in between J2 and J4 on the mainboard



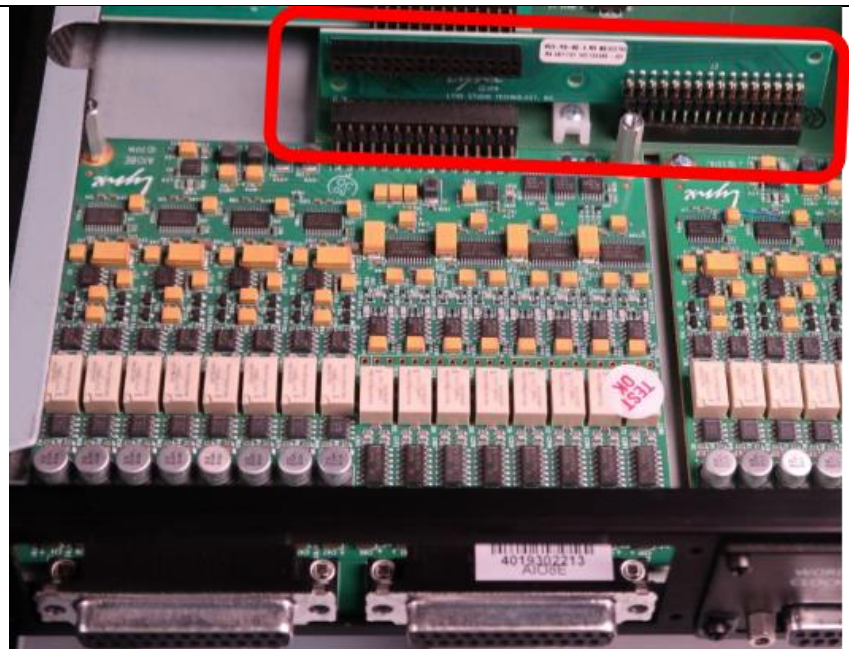
8.

Place the cable tie mount (included with upgrade card) perpendicular to the Line 1-8 card edge, and attach it with the screw removed in step 7



9.

Insert the right-angle header on the mezzanine PCB into J2 on the PROC board. Verify that it is fully inserted and is level. **Verify that the pins of the header are properly aligned with J2. Incorrect alignment will damage the main processor board AND the new module.**



10.

Loop the tie wrap through the white nylon tie wrap mount on the PROC board and the hole in the mezzanine PCB. Tighten the tie wrap, then cut the excess to length. NOTE: do not overtighten the tie wrap.

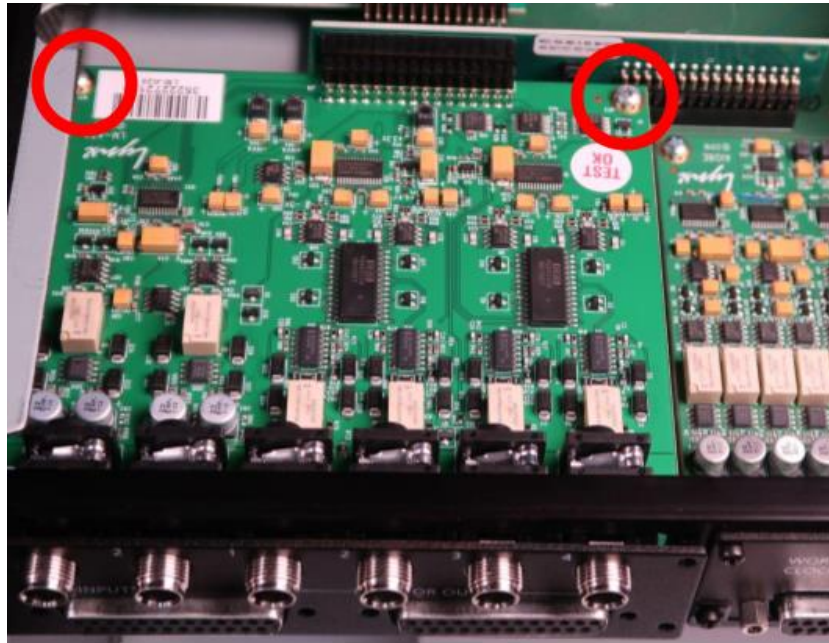


11.

Install the new I/O module into the multi-pin connector on the mezzanine board (note: the cover plate it ships with needs to be removed before installation).

Use the screws removed in step 5 to secure the board to the standoffs.

Verify that the pins of the header are properly aligned with the mezzanine port. Incorrect alignment will damage the main processor board and the new module. The pins of the new board should not be fully inserted into the header on the mezzanine board. There is a gap of about 0.100. If this is not the case the mezzanine board may not be fully vertical.



12.

Align the cover plate over the I/O connectors and press in to seat it. Screw in the cover plate to the back panel with the screws that were removed in step 4.



13.

Screw in the D-Sub jack screws for the original I/O board. If installing an LM-AIO8E board, you'll need to screw in the D-Sub Jack screws that came with the new board. If installing an LM-A4 or LM-A24 monitor card, use the washers and nuts that came with it to secure the ¼" jacks



14.

Tighten internal screws.

15.

Replace the lid.

Refer to the Lynx Website to verify the build. Go to lynxstudio.com/custom-shop, and put in your configuration and make sure that back panel you see matches your upgraded unit. For instance, a 32 channel TB3 unit would look like this:



Now connect AC, turn on the Aurora, and check ABOUT page to verify that the new I/O is listed. Restore defaults, by pressing the SELECT button while on the ABOUT page, and following the prompts.