

KXO-HDM

Dual channel HD-SDI monitoring output mezzanine

Installation Instructions

M860-9900-105

16 December 2014



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Title	KXO-HDM Installation Instructions
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Electrostatic Discharge (ESD) Protection



Electrostatic discharge occurs when electronic components are improperly handled and can result in intermittent failure or complete damage adversely affecting an electrical circuit. When you remove and replace any card from a frame always follow ESD-prevention procedures:

- Ensure that the frame is electrically connected to earth ground through the power cord or any other means if available.
- Wear an ESD wrist strap ensuring that it makes good skin contact. Connect the grounding clip to an *unpainted surface* of the chassis frame to safely ground unwanted ESD voltages. If no wrist strap is available, ground yourself by touching the *unpainted* metal part of the chassis.
- For safety, periodically check the resistance value of the antistatic strap, which should be between 1 and 10 megohms.
- When temporarily storing a card make sure it is placed in an ESD bag.
- Cards in an earth grounded metal frame or casing do not require any special ESD protection.

Protection contre les décharges électrostatiques (DES)



Une décharge électrostatique peut se produire lorsque des composants électroniques ne sont pas manipulés de manière adéquate, ce qui peut entraîner des défaillances intermittentes ou endommager irrémédiablement un circuit électrique. Au moment de remplacer une carte dans un châssis, prenez toujours les mesures de protection antistatique appropriées :

- Assurez-vous que le châssis est relié électriquement à la terre par le cordon d'alimentation ou tout autre moyen disponible.
- Portez un bracelet antistatique et assurez-vous qu'il est bien en contact avec la peau. Connectez la pince de masse à une *surface non peinte* du châssis pour détourner à la terre toute tension électrostatique indésirable. En l'absence de bracelet antistatique, déchargez l'électricité statique de votre corps en touchant une surface métallique *non peinte* du châssis.
- Pour plus de sécurité, vérifiez périodiquement la valeur de résistance du bracelet antistatique. Elle doit se situer entre 1 et 10 mégohms.
- Si vous devez mettre une carte de côté, assurez-vous de la ranger dans un sac protecteur antistatique.
- Les cartes qui sont reliées à un châssis ou boîtier métallique mis à la terre ne nécessitent pas de protection antistatique spéciale.

Recycling

Visit www.grassvalley.com for recycling information.

Electromagnetic Compatibility



This equipment has been tested for verification of compliance with FCC Part 15, Subpart B requirements for class A digital devices.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.



This equipment has been tested and found to comply with the requirements of the EMC directive 2004/108/EC:

- EN 55022 Class A Radiated and conducted emissions
- EN 61000-3-2 Limits for harmonic current emissions
- EN 61000-3-3 Limitation of voltage fluctuations and flicker
- EN 61000-4-2 Electrostatic discharge immunity
- EN 61000-4-3 Radiated, radio-frequency, electromagnetic field immunity
- EN 61000-4-4 Electrical fast transient immunity
- EN 61000-4-5 Surge transient immunity
- EN 61000-4-6 Conducted disturbances immunity
- EN 61000-4-11 Voltage dips, short interruptions and voltage variations immunity

KXO-HDM Installation

The KXO-HDM kit includes all parts required to install a dual channel HD-SDI monitoring mezzanine on a KXO-Dual or KXO-Dual3 module, to add HD-SDI monitoring outputs to your Kaleido-X multiviewer. The multiviewer must have version 4.06 or later of the Kaleido-X Software.

Summary

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Introduction

The KXO-Dual supports the following HD-SDI output resolutions: 1080i 50/60, and 720p 50/60. The KXO-Dual3 supports 1080p 50/60, 1080i 50/60, and 720p 50/60. When you install the KXO-HDM mezzanine on a KXO-Dual3, 1080p support involves connecting the mezzanine's two coaxial cables to the appropriate connectors on the KXO-Dual3 card. If you install the mezzanine on a KXO-Dual card, then these cables are not used and require no manipulation.

Note: The DIP switches that were used to set the SDI output format with earlier versions of the Kaleido-X Software are not relevant anymore and their configuration can be safely ignored.

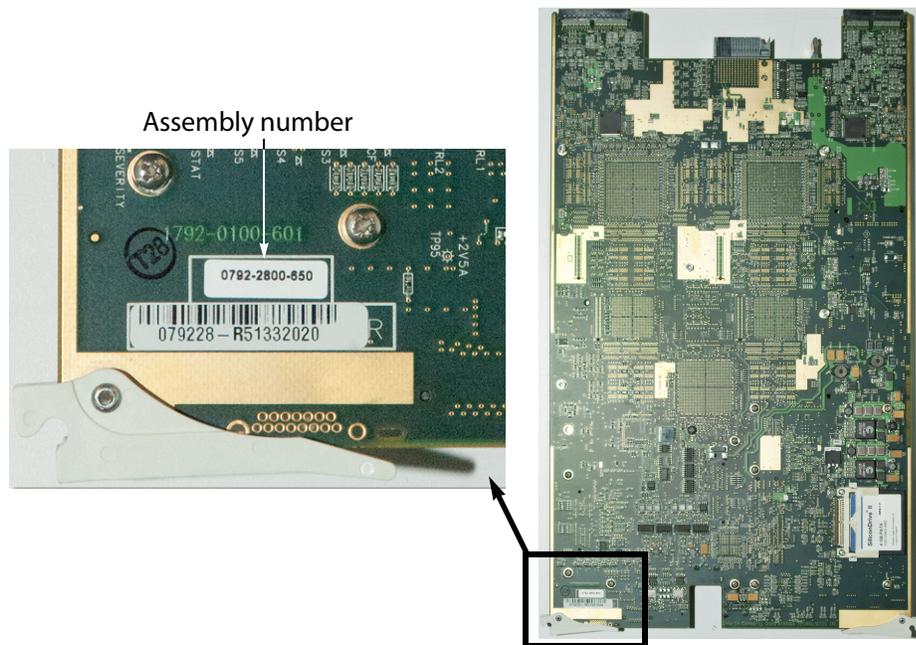
Installation instructions

- If your card's assembly number is between **0792-0100-400** and **0792-0100-599**, follow this procedure: [Installing the KXO-HDM on a First-Generation KXO-Dual](#), on page 2.
- For assembly numbers **0792-0100-600** and above, follow this procedure: [Installing the KXO-HDM on a KXO-Dual3](#), on page 7.

Replacement instructions

- If your card's assembly number is between **0792-0100-400** and **0792-0100-599**, follow this procedure: [Replacing the KXO-HDM on a First-Generation KXO-Dual](#), on page 5.
- For assembly numbers **0792-0100-600** and above, follow this procedure: [Replacing the KXO-HDM on a KXO-Dual3](#), on page 11.

To find your assembly number, look at the underside of the board near the bottom ejector (see picture below). The assembly number is printed on a small white label.



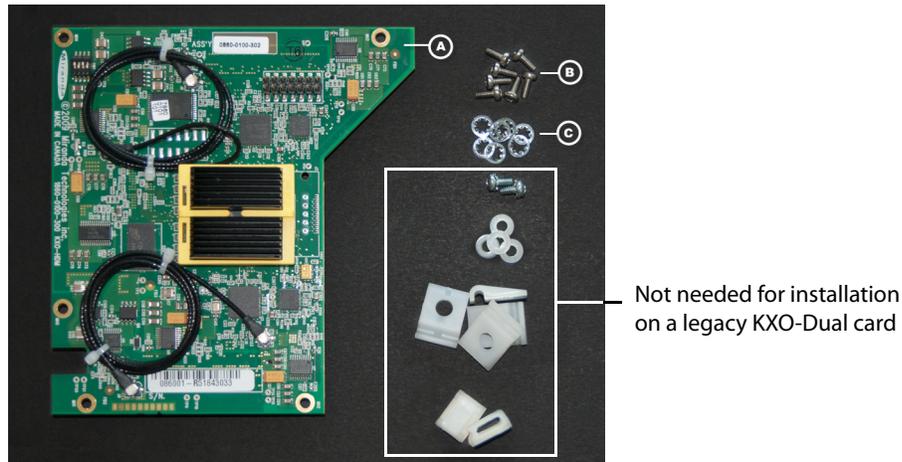
Installing the KXO-HDM on a First-Generation KXO-Dual

This installation procedure applies to the first generation of KXO-Dual boards only, which have an assembly number between **0792-0100-400** and **0792-0100-599**. See [Introduction](#), on page 1, for information on locating the assembly number.

The installation kit includes the following:

- A - One KXO-HDM mezzanine
- B - Seven screws M2.5 × 6mm
- C - Seven lock washers
- D - Two screws 4-40 × ¼ with lock washer
- E - Four washers
- F - Four screw-mount cable retainers
- G - Two adhesive cable retainers

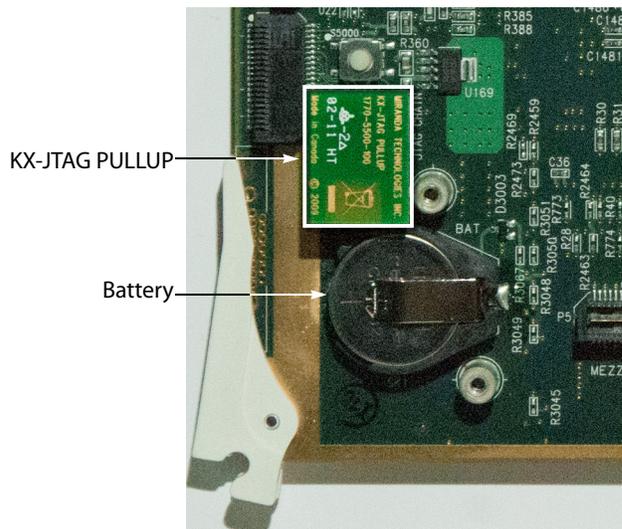
Since installing the KXO-HDM on a KXO-Dual does not involve connecting the mezzanine's coaxial cables (which are only meant to implement 1080p support on the KXO-Dual3), items D, E, F and G are not used, and only five M2.5 × 6mm screws and five lock washers are needed.



Before you start, make sure that you have a Phillips #1 screwdriver at hand, and that you are wearing a static control wrist strap. Allow approximately 15 minutes to complete the installation.

To install the KXO-HDM on a KXO-Dual card

- 1 Lay your KXO-Dual card on a work surface.
- 2 Remove the small PCB (KX-JTAG PULLUP, part no. 1770-5500-100), next to the battery, in the area near the bottom ejector, by gently pulling it away from the card.



The mezzanine is installed in the lower left corner of the card.

- 3 Locate the two mezzanine connectors as shown below.

KXO-HDM Installation

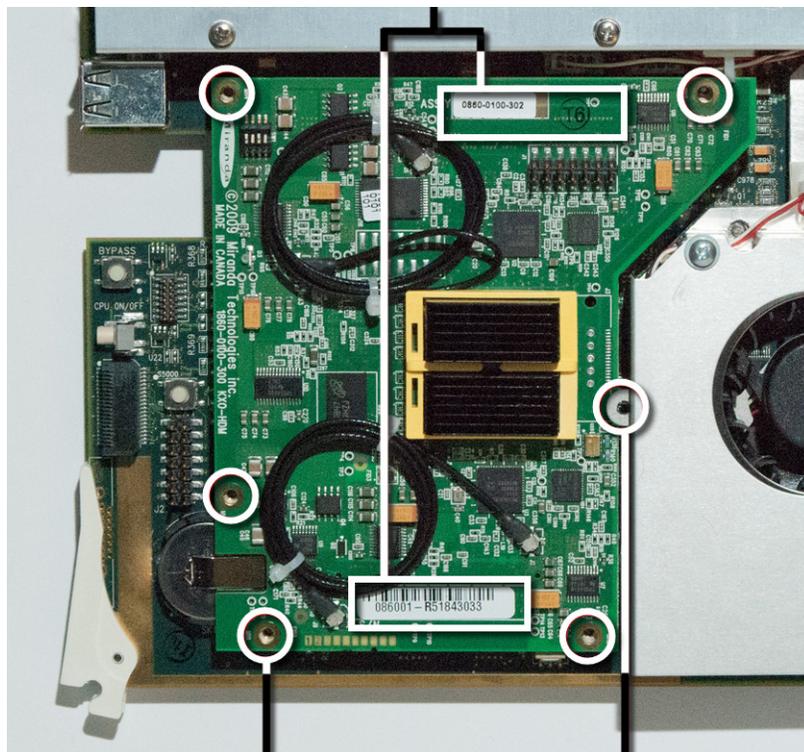
Installing the KXO-HDM on a First-Generation KXO-Dual



Mezzanine connectors

- 4 Place the mezzanine carefully unto the KXO-Dual card connectors.
The mezzanine fits underneath the large heatsink mounting bracket shown below.
- 5 While supporting the underside of the main board, apply pressure in the connector areas until the mezzanine is fully connected.

Connector areas



Five mezzanine mounting holes

Place mezzanine under heatsink mounting bracket

- 6 Place the five screws **B** and the five lock washers **C** in the mounting holes (shown above), and tighten carefully to attach the mezzanine to the spacers on the card.
 - 7 Reinstall the small PCB that you had to remove in [step 2](#) (see [page 3](#)).
- The mezzanine installation is now complete. Reseat the KXO-Dual card in the frame.

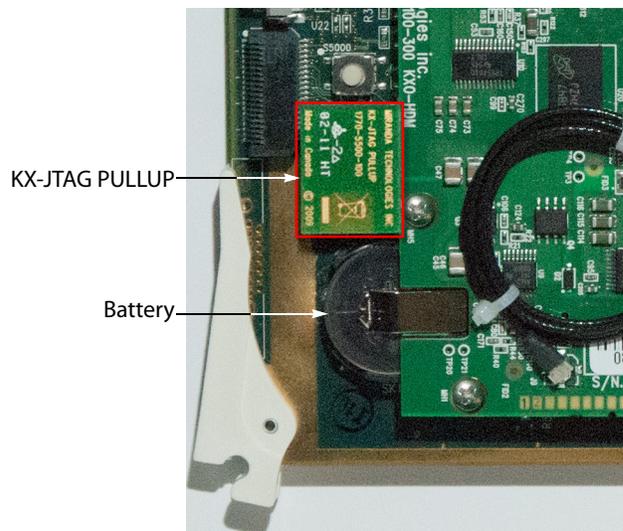
Replacing the KXO-HDM on a First-Generation KXO-Dual

This replacement procedure applies to the first generation of KXO-Dual boards only, which have an assembly number between **0792-0100-400** and **0792-0100-599**. See [Introduction](#), on page 1, for information on locating the assembly number.

Before you start, make sure that you have a Phillips #1 screwdriver at hand, and that you are wearing a static control wrist strap. Allow approximately 15 minutes to complete the installation.

To replace the KXO-HDM on a KXO-Dual card

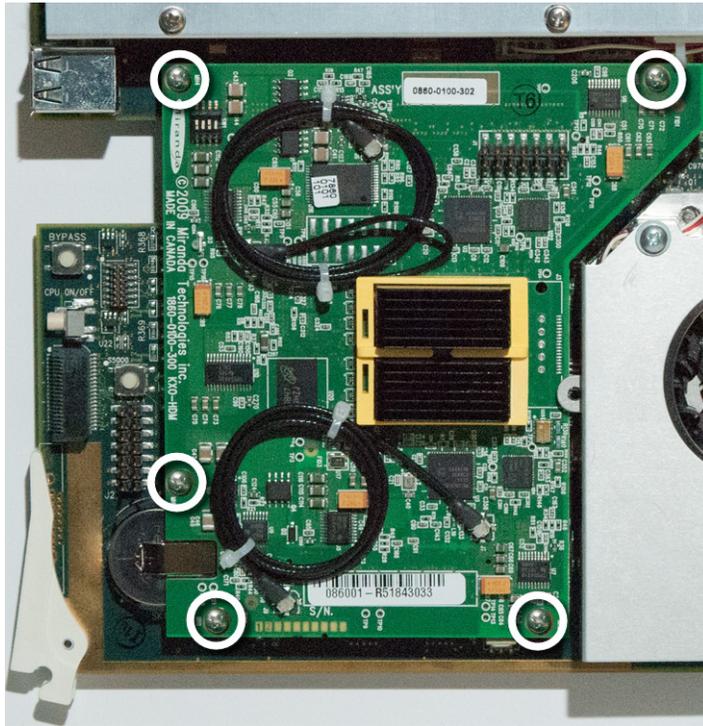
- 1 Lay your KXO-Dual card on a work surface.
- 2 Remove the small PCB (KX-JTAG PULLUP, part no. 1770-5500-100), next to the battery, in the area near the bottom ejector, by gently pulling it away from the card.



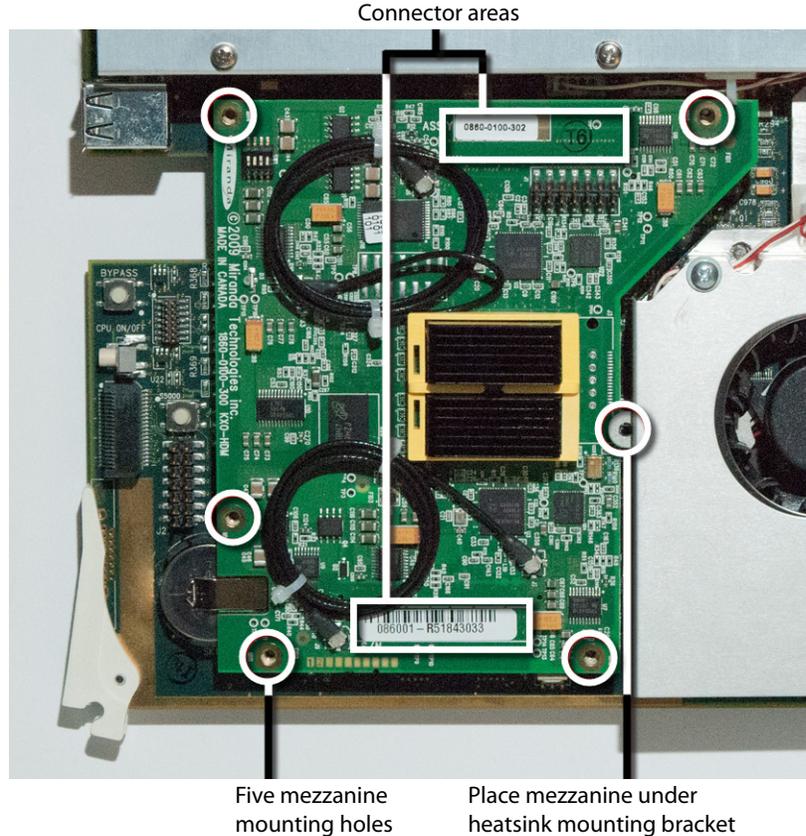
- 3 Remove the five screws and washers.

KXO-HDM Installation

Replacing the KXO-HDM on a First-Generation KXO-Dual



- 4 Carefully lift the KXO-HDM mezzanine to separate the connectors.
- 5 Place the new KXO-HDM mezzanine carefully onto the KXO-Dual card connectors.
The mezzanine fits underneath the large heatsink mounting bracket shown below.
- 6 While supporting the underside of the main board, apply pressure in the connector areas until the mezzanine is fully connected.



- 7 Place the five screws and five lock washers you removed in [step 3](#) back in their mounting holes (shown above), and tighten lightly.
- 8 Reinstall the small PCB that you had to remove in [step 2](#) (see [page 5](#)).
The mezzanine replacement is now complete. Reseat the KXO-Dual card in the frame.

Installing the KXO-HDM on a KXO-Dual3

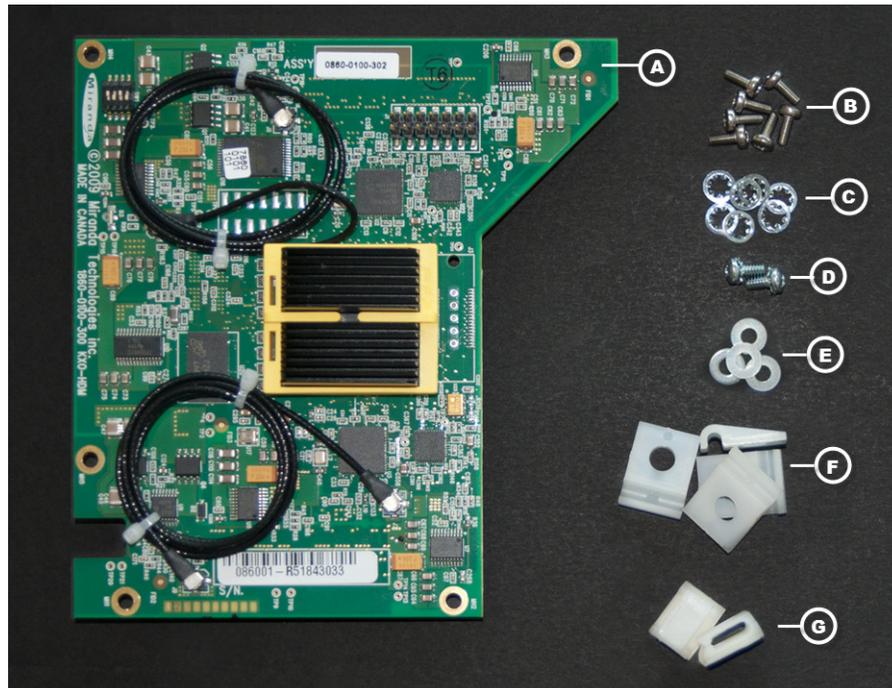
This installation procedure applies to the KXO-Dual3 boards only, which have assembly numbers **0792-0100-600** and above. See [Introduction](#), on page 1, for information on locating the assembly number.

The contents of the installation kit are shown in the picture below:

- A - One KXO-HDM mezzanine
- B - Seven screws M2.5 × 6mm
- C - Seven lock washers
- D - Two screws 4-40 × ¼ with lock washer
- E - Four washers
- F - Four screw-mount cable retainers
- G - Two adhesive cable retainers

KXO-HDM Installation

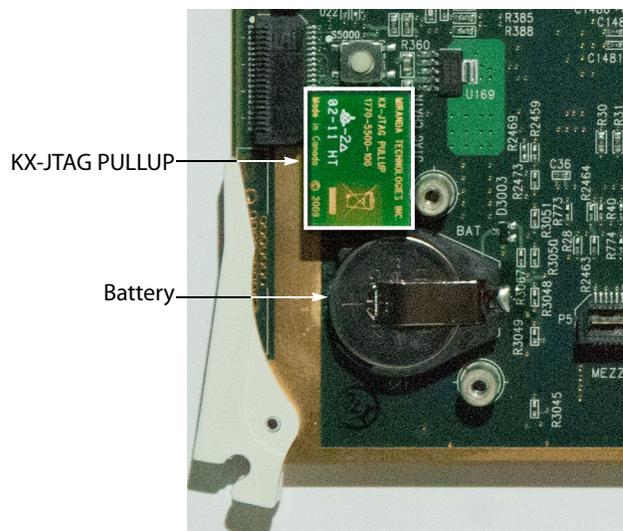
Installing the KXO-HDM on a KXO-Dual3



Before you start, make sure that you have the Phillips #1 screwdriver, and long nose flat pliers needed to perform this installation, and that you are wearing a static control wrist strap. Allow approximately 20 minutes to complete the installation.

To install the KXO-HDM on a KXO-Dual3 card

- 1 Lay your KXO-Dual3 card on a work surface.
- 2 Remove the small PCB (KX-JTAG PULLUP, part no. 1770-5500-100), next to the battery, in the area near the bottom ejector, by gently pulling it away from the card.



The mezzanine is installed in the lower left corner of the card.

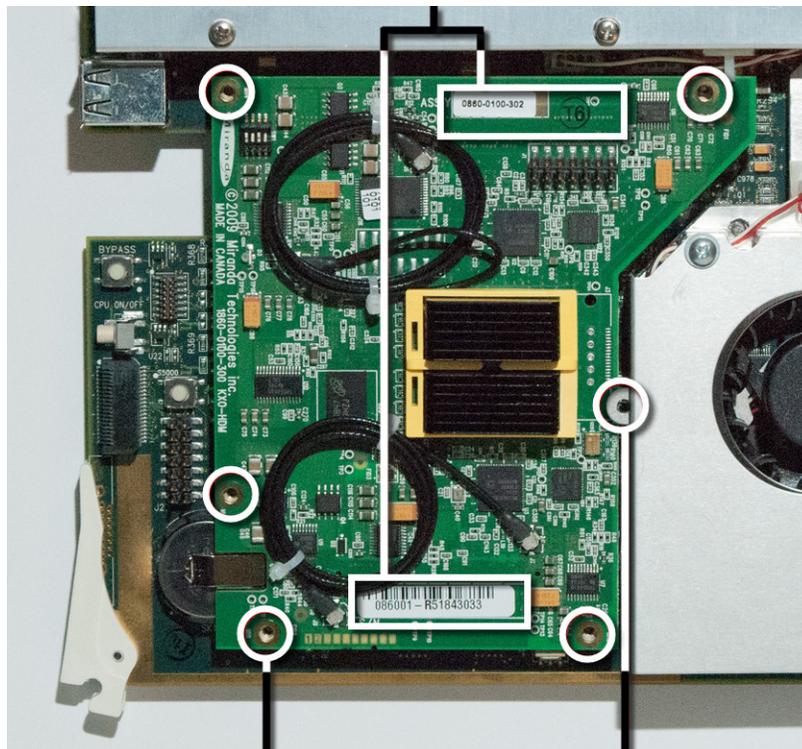
- 3 Locate the two mezzanine connectors as shown below.



Mezzanine connectors

- 4 Place the mezzanine carefully unto the KXO-Dual3 card connectors.
The mezzanine fits underneath the large heatsink mounting bracket shown below.
- 5 While supporting the underside of the main board, apply pressure in the connector areas until the mezzanine is fully connected.

Connector areas



Five mezzanine
mounting holes

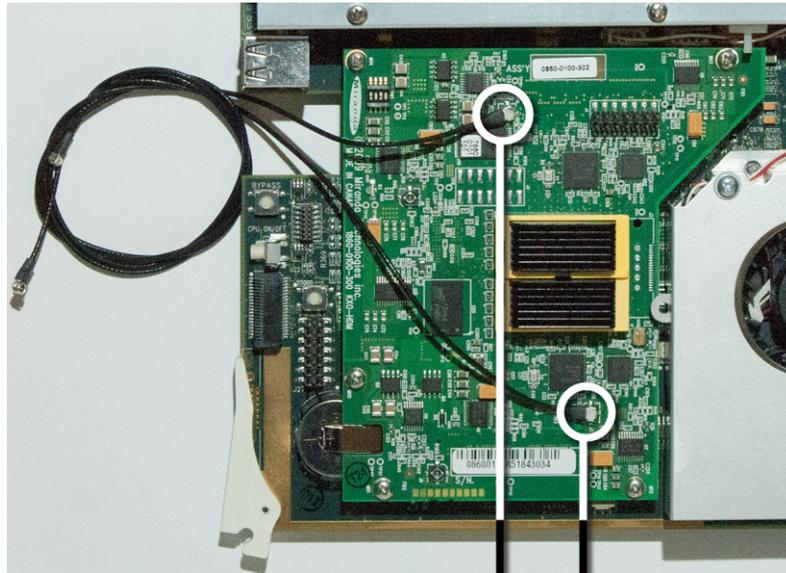
Place mezzanine under
heatsink mounting bracket

- 6 Place five screws **B** and five lock washers **C** in the mounting holes (shown above), and tighten carefully to attach the mezzanine to the spacers on the card.
- 7 Unplug the coaxial cables from the *dummy* connectors, open the plastic cable ties, and then unwind the cables.

TIP

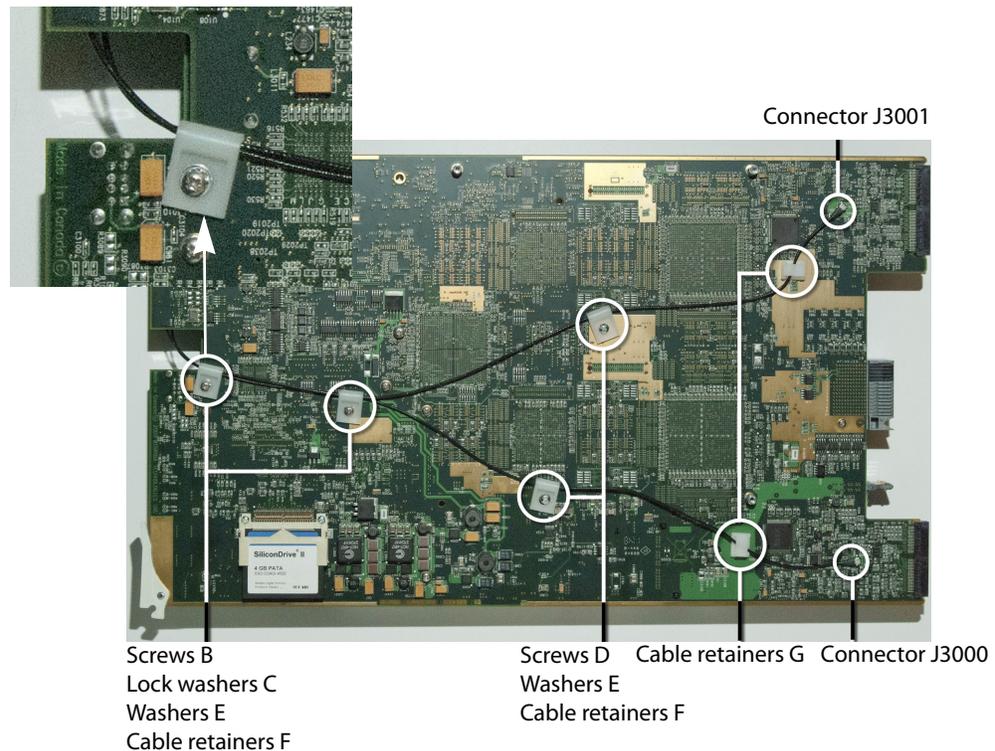
To open the cable ties without cutting them, crush their ratchet box by using long nose flat pliers.

The picture below shows where the *working* connectors **J6** and **J7** are located.



Connector J6 Connector J7

- 8 Turn the card over, and then use the cut-out on the front edge to route the cables.
- 9 Plug the coaxial cables in the two miniature connectors as follows:
 - mezzanine connector **J6** to KXO-Dual3 card connector **J3000**,
 - mezzanine connector **J7** to KXO-Dual3 card connector **J3001**.



- 10 Secure the coaxial cables using the hardware described in the picture above.
The four washers E are inserted between lock washer and cable retainer. In most of the mounting holes used, there are hexagonal supports that need to be removed before attaching the plastic cable retainers.
- 11 Reinstall the small PCB that you had to remove in [step 2](#) (see [page 8](#)).
The mezzanine installation is now complete. Reseat the KXO-Dual3 card in the frame.

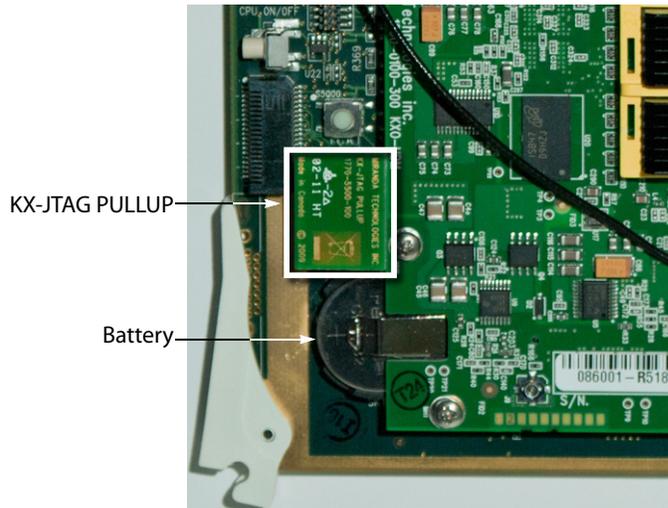
Replacing the KXO-HDM on a KXO-Dual3

This replacement procedure applies to the KXO-Dual3 boards only, which have assembly numbers **0792-0100-600** and above. See [Introduction](#), on page 1, for information on locating the assembly number.

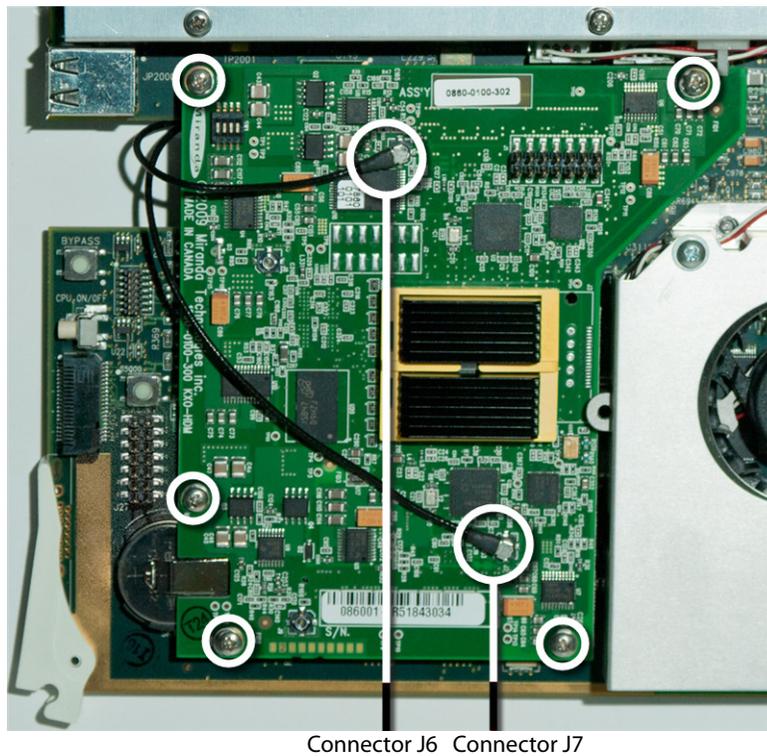
Before you start, make sure that you have a Phillips #1 screwdriver at hand, and that you are wearing a static control wrist strap. Allow approximately 15 minutes to complete the installation.

To replace the KXO-HDM on a KXO-Dual3 card

- 1 Lay your KXO-Dual3 card on a work surface.
- 2 Remove the small PCB (KX-JTAG PULLUP, part no. 1770-5500-100), next to the battery, in the area near the bottom ejector, by gently pulling it away from the card.



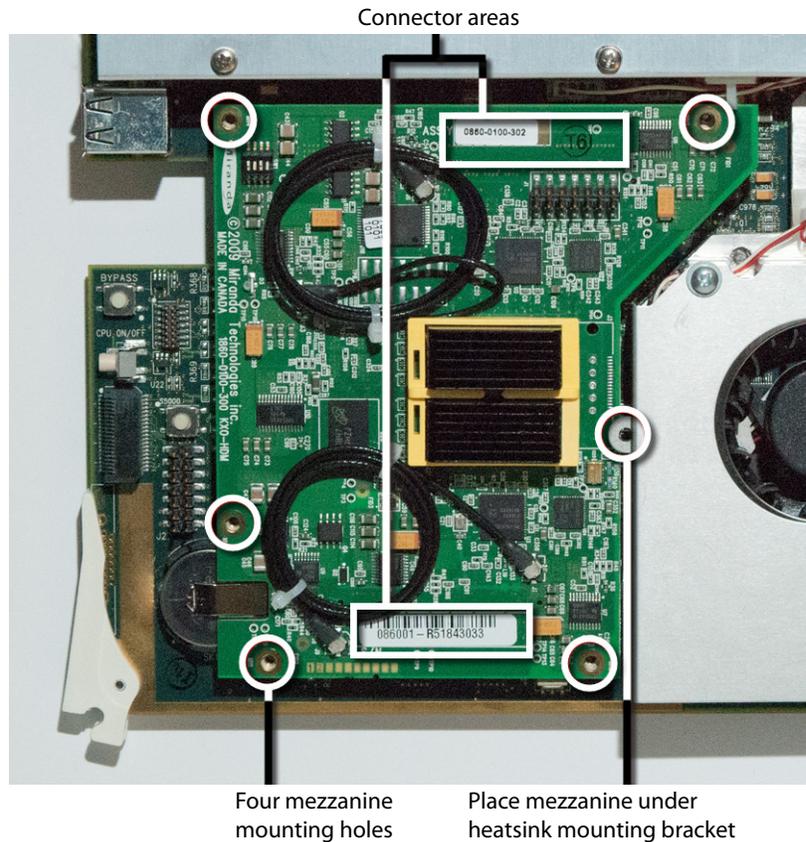
- 3 Remove the five screws and washers, and unplug both coaxial cables from the **J6** and **J7** connectors.



IMPORTANT
Note where the connectors **J6** and **J7** are located.

- 4 Carefully lift the KXO-HDM mezzanine to separate the connectors.
- 5 Place the new KXO-HDM mezzanine carefully unto the KXO-Dual3 card connectors.
The mezzanine fits underneath the large heatsink mounting bracket shown below.

- 6 While supporting the underside of the main board, apply pressure in the connector areas until the mezzanine is fully connected.



- 7 Place the five screws and five lock washers you removed in [step 3](#) back in their mounting holes (shown above), and tighten lightly.
Assuming the original coaxial cables you disconnected in [step 3](#) are still in good condition, you can unplug the new mezzanine's coaxial cables from their connectors, and save them for future use.
- 8 Plug the coaxial cables you disconnected in [step 3](#) back into the **J6** and **J7** connectors, making sure that:
 - the cable you connect to mezzanine connector **J6** is the one attached to the KXO-Dual3 card connector **J3000**, and
 - the cable you connect to mezzanine connector **J7** is the one attached to the KXO-Dual3 card connector **J3001**.
- 9 Reinstall the small PCB that you had to remove in [step 2](#) (see [page 11](#)).
The mezzanine replacement is now complete. Reseat the KXO-Dual3 card in the frame.



Grass Valley Technical Support

For technical assistance, contact our international support center, at 1-800-547-8949 (US and Canada) or +1 514 333 1772.

To obtain a local phone number for the support center nearest you, please consult the Product Support section of Grass Valley's Web site, at <http://www.grassvalley.com/support/contact>.

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