60-553 High Density LXI Matrix - Card Replacement Procedure

In case of relay failure, the matrix cards of the 60-553 may be removed for repair or replacement. The chassis may be fitted with up to eight matrix cards depending upon the overall matrix size. This procedure describes the steps involved in removing and replacing all the matrix cards.

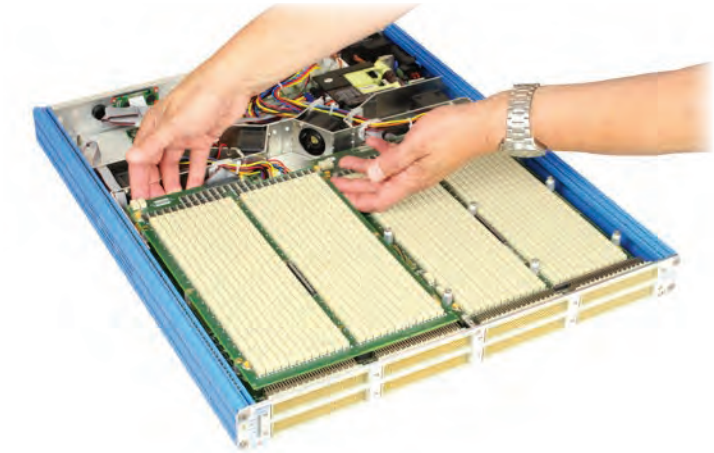
- First power down the chassis and remove all connections from the unit.
  IMPORTANT - The mains supply lead must be removed from the rear of the unit before the cover is removed

- Remove the twelve fixing screws securing the top cover to the chassis.

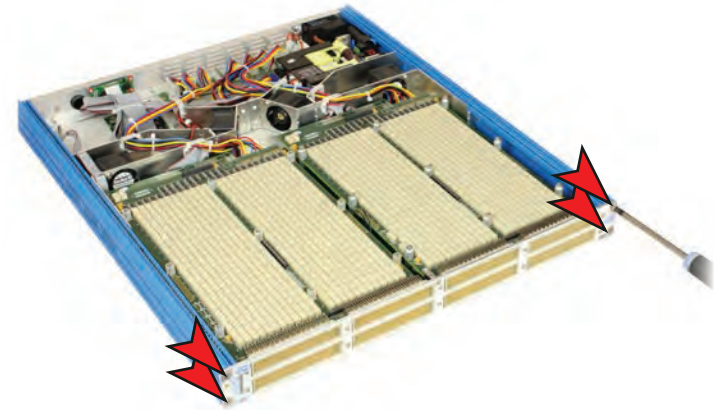
- Remove the cover by sliding it towards the rear of the unit.

ISSUE 1.0 JUN 2017

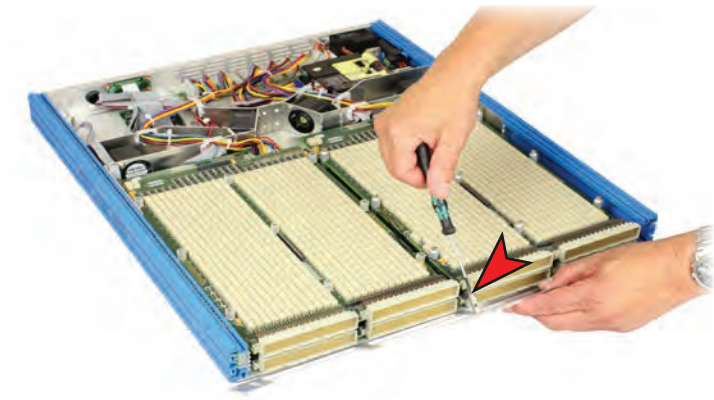
- To remove the upper left matrix daughter card, first remove the nine fixing screws securing it to the circuit boards below.



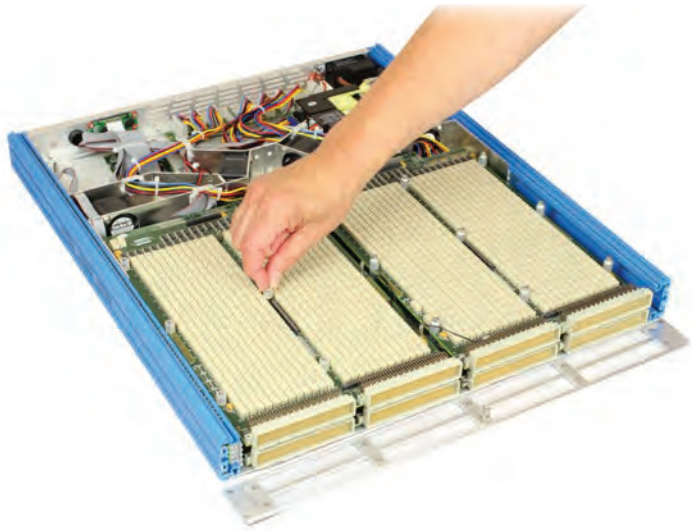
- The daughter card can be removed by lifting it upwards to disengaging it from the connectors linking it to the mother card below.
  Note: The unit shown is not fitted with an upper right daughter card. If one is fitted, the removal procedure is the same as described for the upper left daughter card.



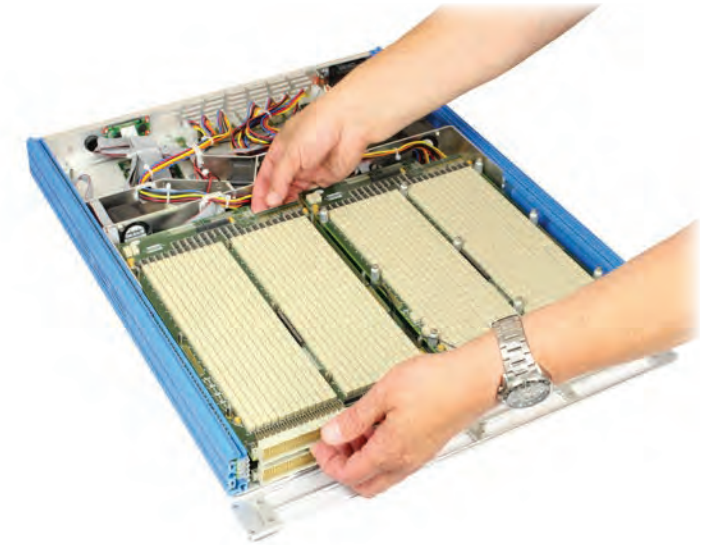
- Before the matrix mother cards can be accessed, the front panel has to be removed. This is because the connectors on the mother cards fit through apertures in the panel. Remove the front panel by first removing the four screws securing it to the chassis.



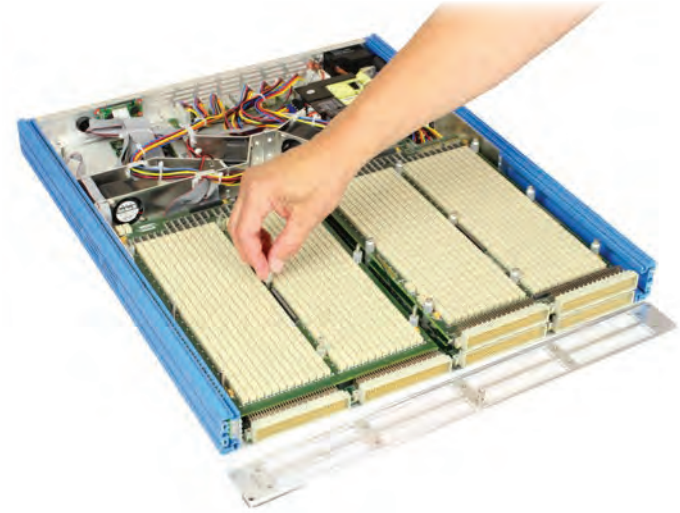
- Next remove the screw securing the earth wires to the front panel.



- With the front panel separated from the chassis, remove the nine spacers from the top of the upper left matrix mother card.



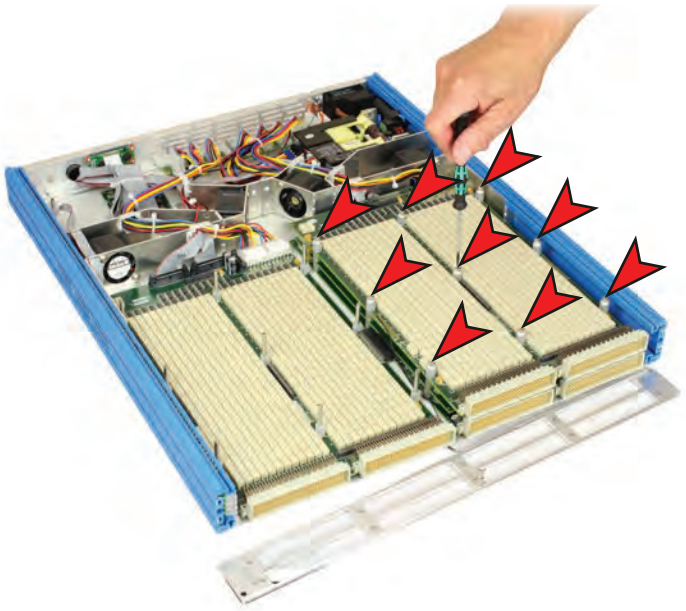
- The mother card can be removed by lifting it upwards to disengaging it from the connectors linking it to the card below.



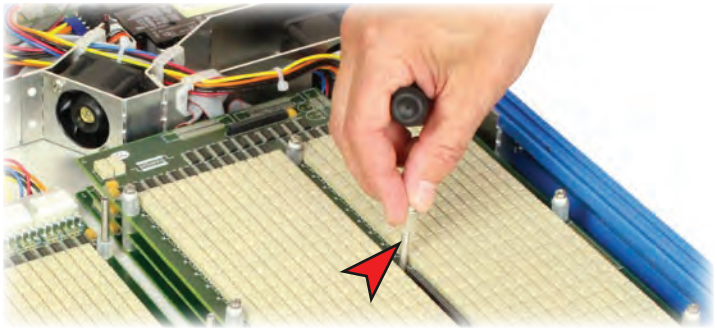
- Remove the nine spacers from the top of the lower left matrix daughter card.

- Removal of the daughter card requires it to be disengaged from the connectors linking it to the lower mother board. These can be tight and careful levering with a screwdriver can help.

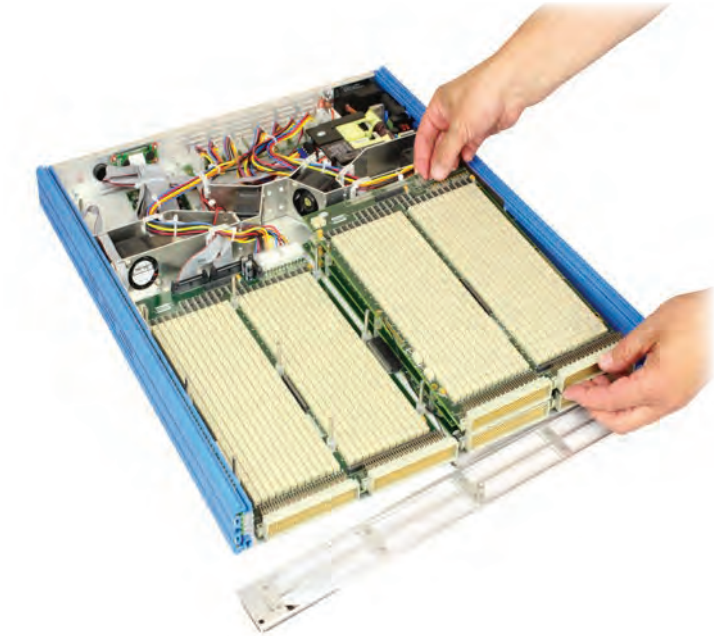
- Once disengaged, the daughter card can be lifted off the mounting pillars.



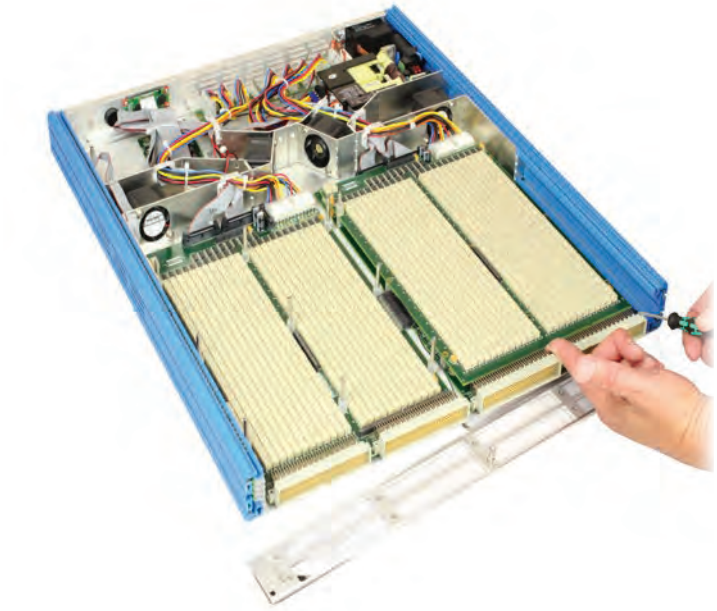
- To remove the upper right matrix mother card, first remove the nine fixing screws securing it to the cards below.
  Note: In this case no upper right daughter card is fitted so the spacers are located directly under the screws.



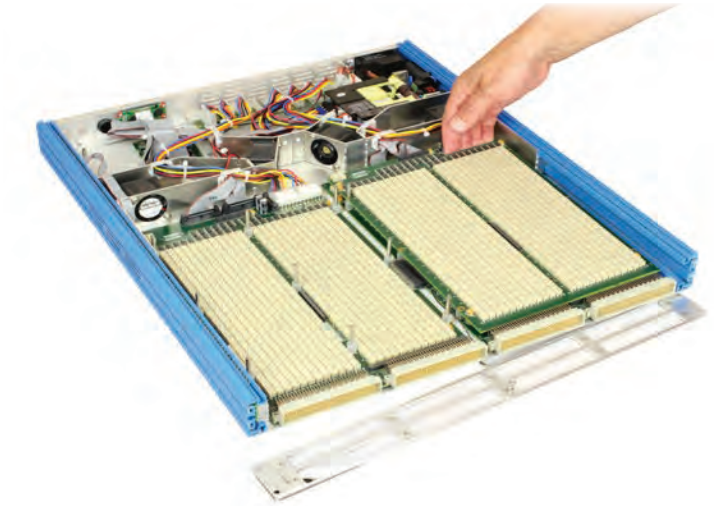
- When removing the card fixing screws, sometimes the whole pillar becomes detached. This is not a problem, but greater care will be required when the cards and spacers are re-fitted.



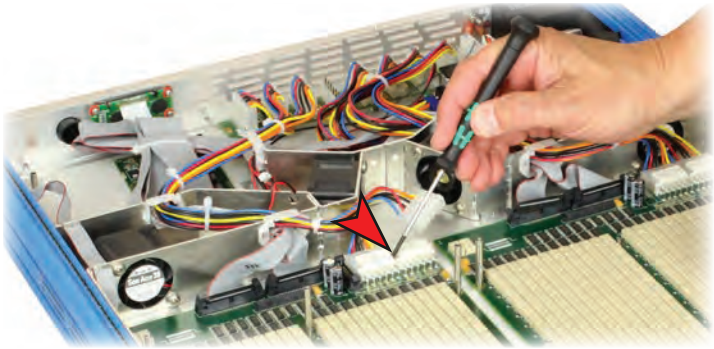
- Once the screws and spacers have been removed, the mother card can be removed by lifting it upwards to disengaging it from the connectors linking it to the card below.



- Before removing the lower right daughter card, remove the nine spacers on top of the card.
- Removal of the daughter card requires it to be disengaged from the connectors linking it to the lower mother card. These can be tight and careful levering with a screwdriver can help.

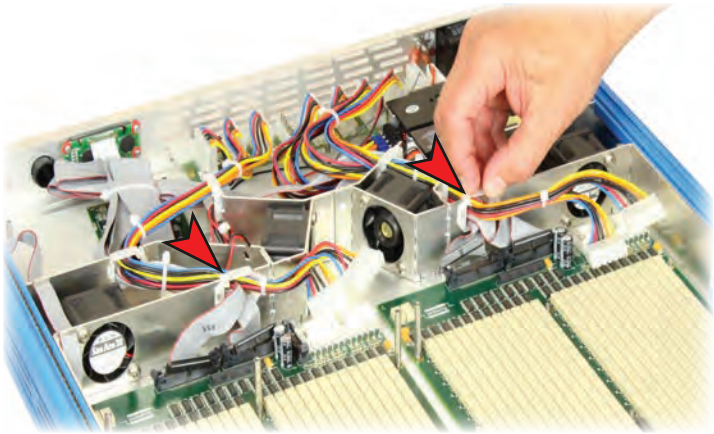


- Once disengaged, the daughter card can be lifted away from the chassis.

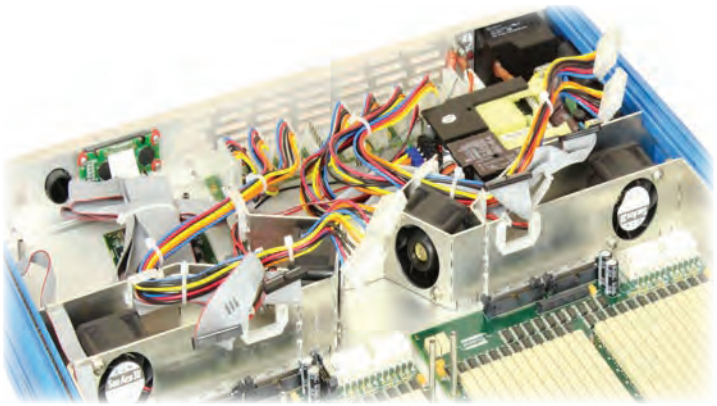


- Before removal of the lower mother cards, the four power cables and four data cables have to be disconnected. As there is limited space behind the boards, the power connectors can be removed by carefully levering them free with a screwdriver.

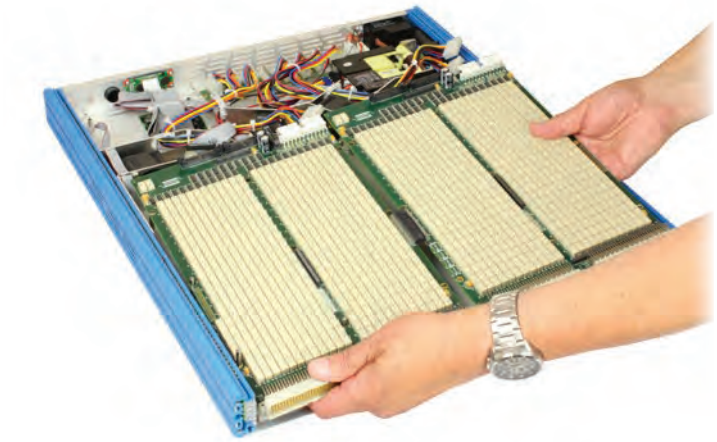
- To remove the data cables, push the black retaining levers away from each other to eject the connector.



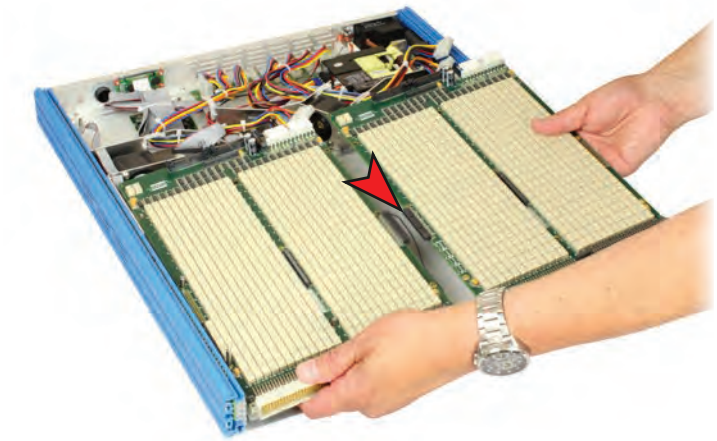
- Card removal is made easier if the cables are positioned out of the way. To do this, first release the two cable clamps.



- Lift the power and data cables out of the cut-outs in the chassis, and position them away from the mother cards.

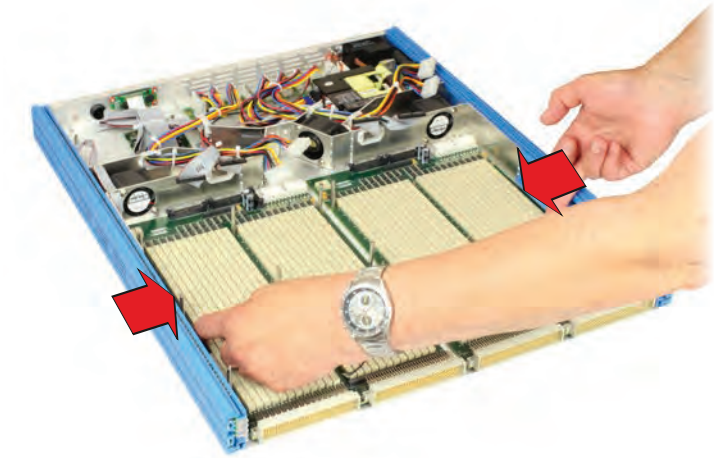


- The mother cards can now be lifted out of the chassis.
  Note: As the mother cards are joined with a connector, they have to be removed together. This operation can be difficult for one person so the help of an assistant is recommended.

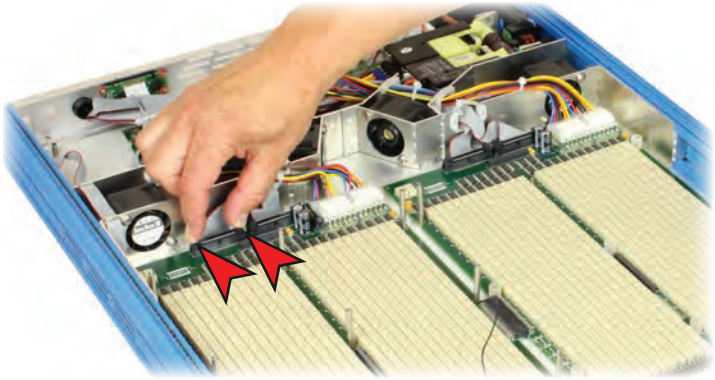


- Once the mother cards are free from the mounting pillars, they can be pulled apart to separate the board-to-board connector.

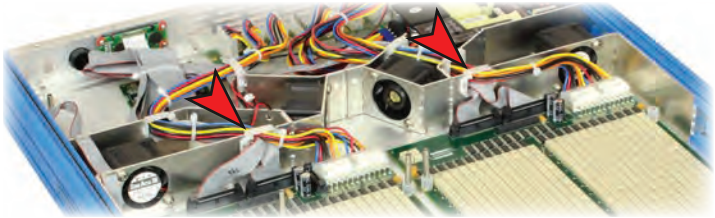
- With the matrix cards removed from the chassis, the required repairs can be carried out before re-assembly.



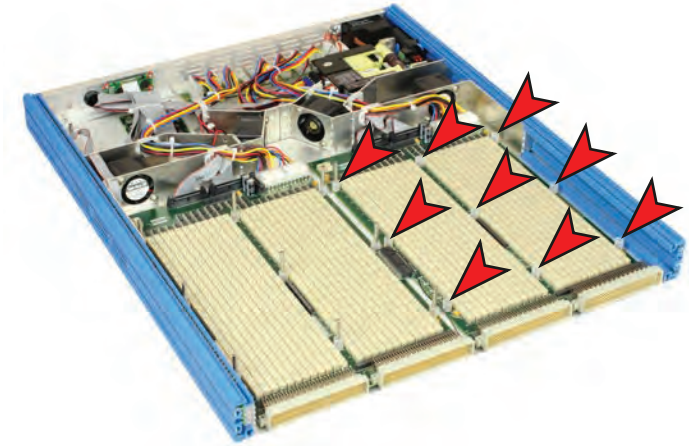
- Re-fit the two lower mother cards by first connecting them together, locating them onto the mounting pillars, then lowering them into the chassis.
  Note: As the mother cards are joined with a connector, they have to be replaced together. This operation can be difficult for one person so the help of an assistant is recommended.
- Once the two mother cards are in the chassis, push them firmly together to ensure the board-to-board connector is fully located.



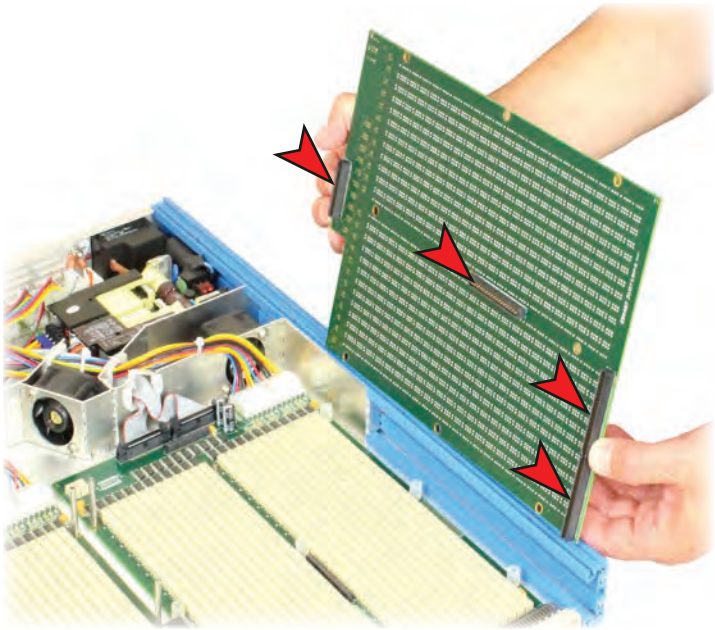
- Re-fit the four power connectors and the four data connectors to the mother cards. To fit the data connectors, first make sure the retaining levers on the card's plug are positioned outwards. Next push the cable's socket into the plug, then push the retaining levers together to lock the connector in position.
  Note: It is important to fit the data connectors into their original positions. The way in which the ribbon cables are tied together should make the correct connector easy to identify.



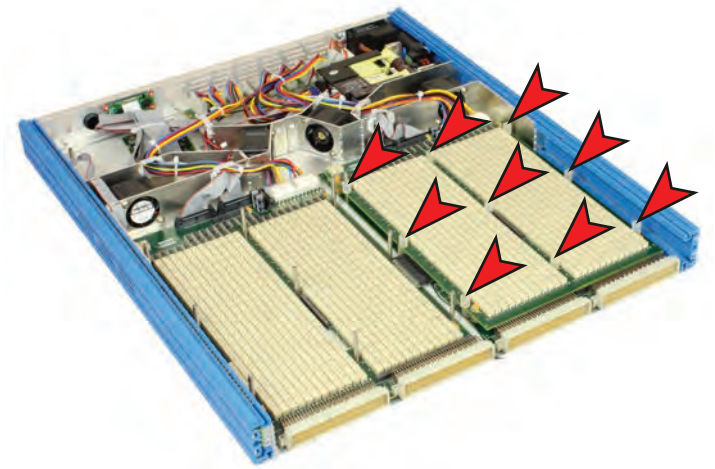
- Re-locate the power and data cables into the cut-outs in the chassis and re-lock the cable clamps.



- Before fitting the lower right daughter card, first place spacers on the nine fixing holes on the mother card below.

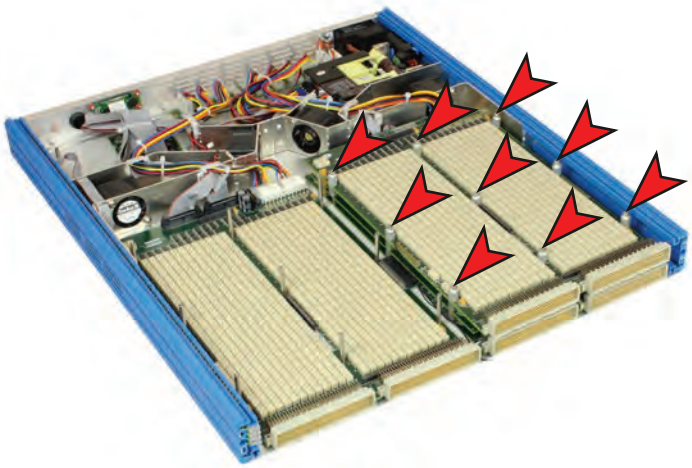


- The lower right daughter card is linked to the card below with four connectors. Position the daughter card on top of the mother card and press down firmly to ensure these connectors are fully engaged.

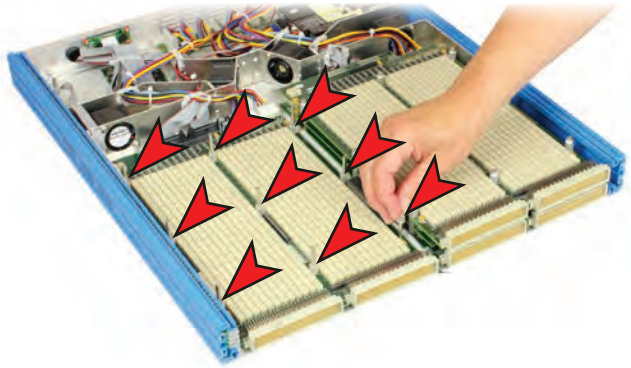


- After the lower right daughter card, the upper right mother card can be re-fitted. First position nine spacers on the fixing holes of the daughter card.

- Next, fit the upper right mother card. This is linked to the card below with two connectors. Position the mother card on top of the daughter card and press down firmly to ensure these connectors are fully engaged.

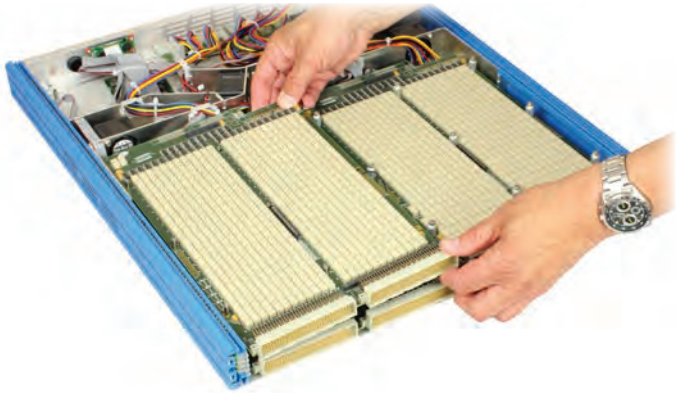


- Secure the mother card with nine screws and spacers. If the fixing pillars were removed during the disassembly process, carefully fit them through the holes in the cards and tighten with a screwdriver.
  Note: In this case no upper right daughter card is fitted so the spacers are located directly under the screws.



- Fit the lower left daughter card by first fitting nine spacers to the fixing pillars.
- Locate the daughter card onto the fixing pillars and press down firmly to fully engage the four connectors in the same way as the lower right daughter card.

- Fit the upper left mother card by first fitting nine spacers to the fixing pillars.

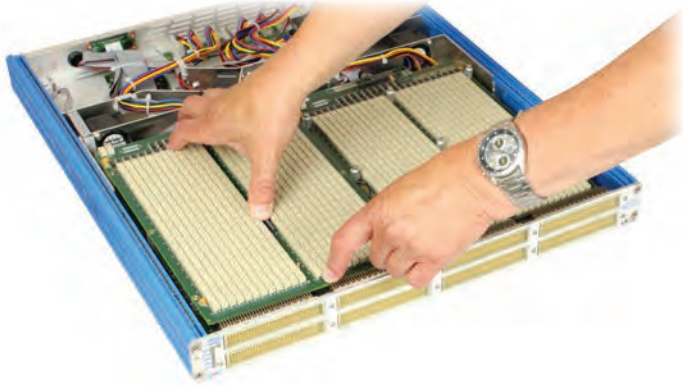


- Locate the mother card onto the fixing pillars and press down firmly to fully engage the two connectors in the same way as the upper right mother card.

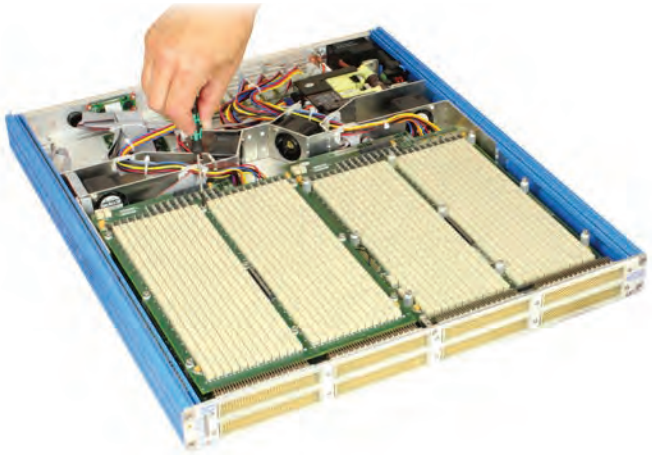
- Refit the earth wires to the front panel and secure with a screwdriver.

- Position the front panel onto the chassis making sure the connectors on the mother cards fit through their apertures.
- Secure the front panel with its four fixing screws

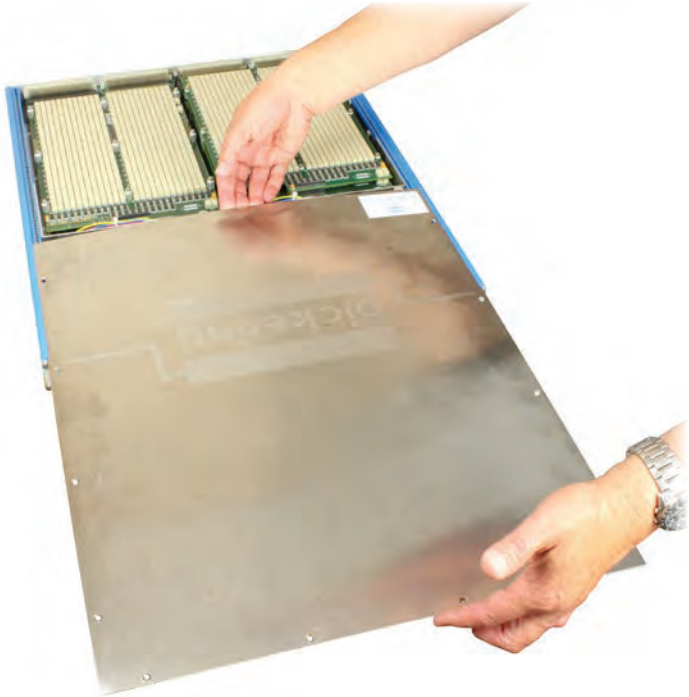
- Fit the upper left daughter cards by first fitting nine spacers onto the fixing pillars



- Locate the daughter card onto the fixing pillars and press down firmly to fully engage the connectors linking it to the mother card below.



- Fit the nine fixing screws and secure with a screwdriver.



- With all the matrix cards fitted, the power and data connectors re-attached and the wiring returned to its original position, the top cover can be re-fitted.
  Fit it into the grooves in the chassis side rails and slide into position from the rear of the chassis. When fitting the cover, lift the front edge to help it clear the wiring.

- Make sure the front edge of the cover locates in the groove in the front panel. When it is fully located, secure the cover with its twelve fixing screws.
- With the unit re-assembled, re-attach power and network cables and test its switching function.