

3B2 Backplane Reconfiguration



10 step process (20 slides) for reconfiguring the arrangement of feature cards on the back of your PC-III system.

Backplane Reconfiguration – “Why?”

At some point in time the TAC may ask you to perform this task on your PC-III system in order to remove a malfunctioning feature card. The offending card (most likely an EPORTS board) may be inhibiting performance or the normal operation of your system.

Advances in communications technology have rendered many of the feature cards originally equipped on your system obsolete. As these cards age they may negatively interact with the operating system and must be removed.

Simply removing a malfunctioning card is not enough. A system will not function with a card removed from the center of the arrangement. The gap or void left must be eliminated in order for the system to pass continuity checks during startup.

3B2 Feature Cards

Here are some of the cards commonly found installed on a PC-III system:



Single Ended SCSI controller. Found on every system. Essential to system operation.



Differential SCSI controller. Found on larger systems only. Essential to system operation.



Network Interface (NAU). Found on every system. Essential to system operation.



EPORTS board. For modem communications. Found on every system. Now obsolete.



SPSC (DDN) card. Found on some systems. Now obsolete.



Serial Controller. Found on some systems. Now obsolete.



FXM (Fiber eXpansion Module). Found on some systems. Now obsolete.

3B2 Feature Cards (cont.)

Originally configured at AFPC to suit specific needs of the field, the arrangement of the feature cards will vary greatly from system to system.



Langley Endpoint 032



McConnell Core

Look closely at the systems above. At first glance they look similar, but closer inspection reveals big differences between the two.

Tools Required



Tools Required: Flat blade/slotted (-) screwdriver (ok) or 3/16" nut driver (best) and card puller (installed on back of system).

Precautions



Ensure system is on standby (shell command “/etc/init 0”) and power cord is unplugged. Before handling any components, please ensure you protect the device from static discharge. Simply get into position and grasp the system cabinet to discharge static build up.



Step 1

Powering down the system

Power down the system. On the console enter the UNIX shell and “su” to become “root-user”.

At the “#” prompt, enter the command “/etc/init 0” to initiate run level zero (power down).

Flip switch to “standby” when prompted by the console.

Step 2

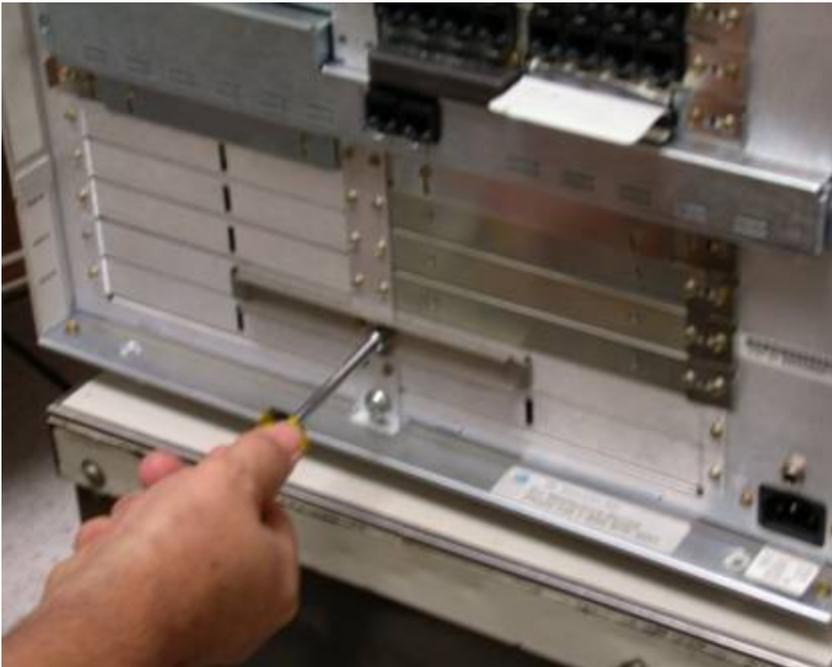
Disconnecting the cables

Disconnect all cables from the back of the system. It goes without saying to remember where they go and exactly how to reconnect each:

- **Power cable (lower right corner)**
- **Console cable (left port)**
- **SCSI cable (“this side up”)**
- **LAN / NAU cable**

Step 3

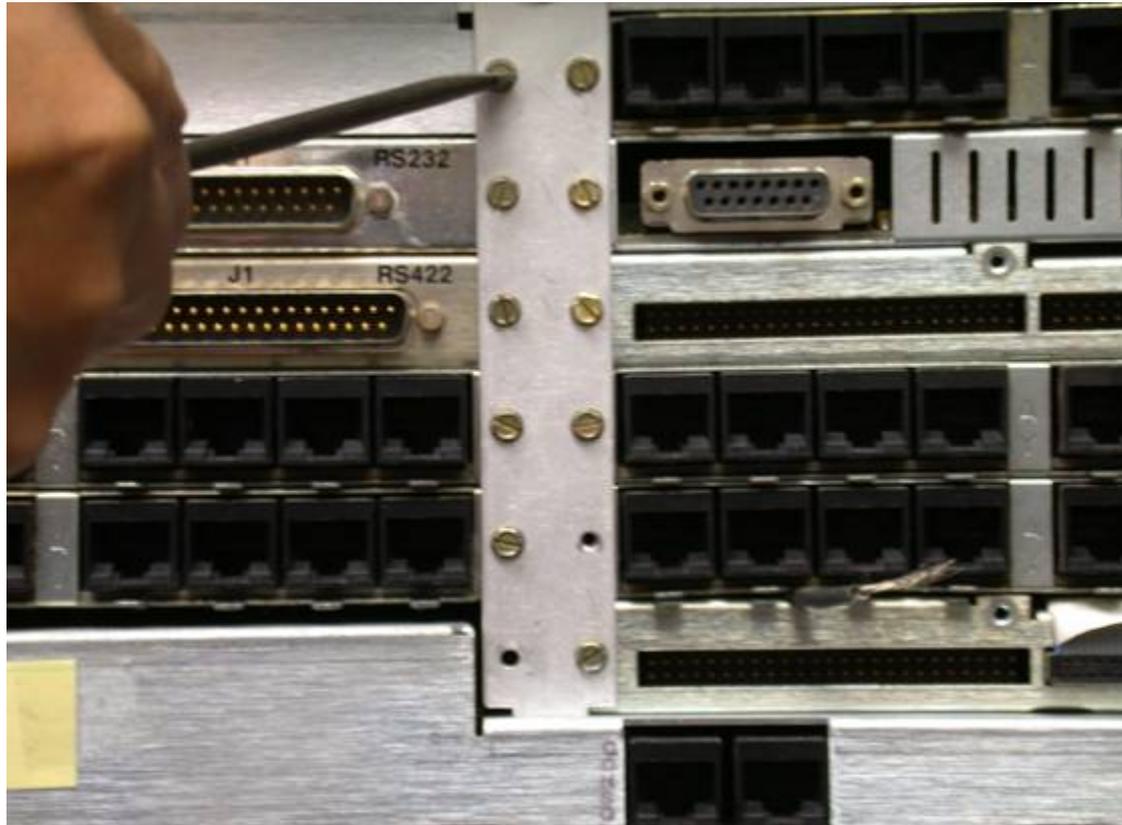
Removing the card puller



Using the screwdriver or 3/16" nutdriver, remove the two screws securing the card puller to the back of the system and remove the tool.

Step 4

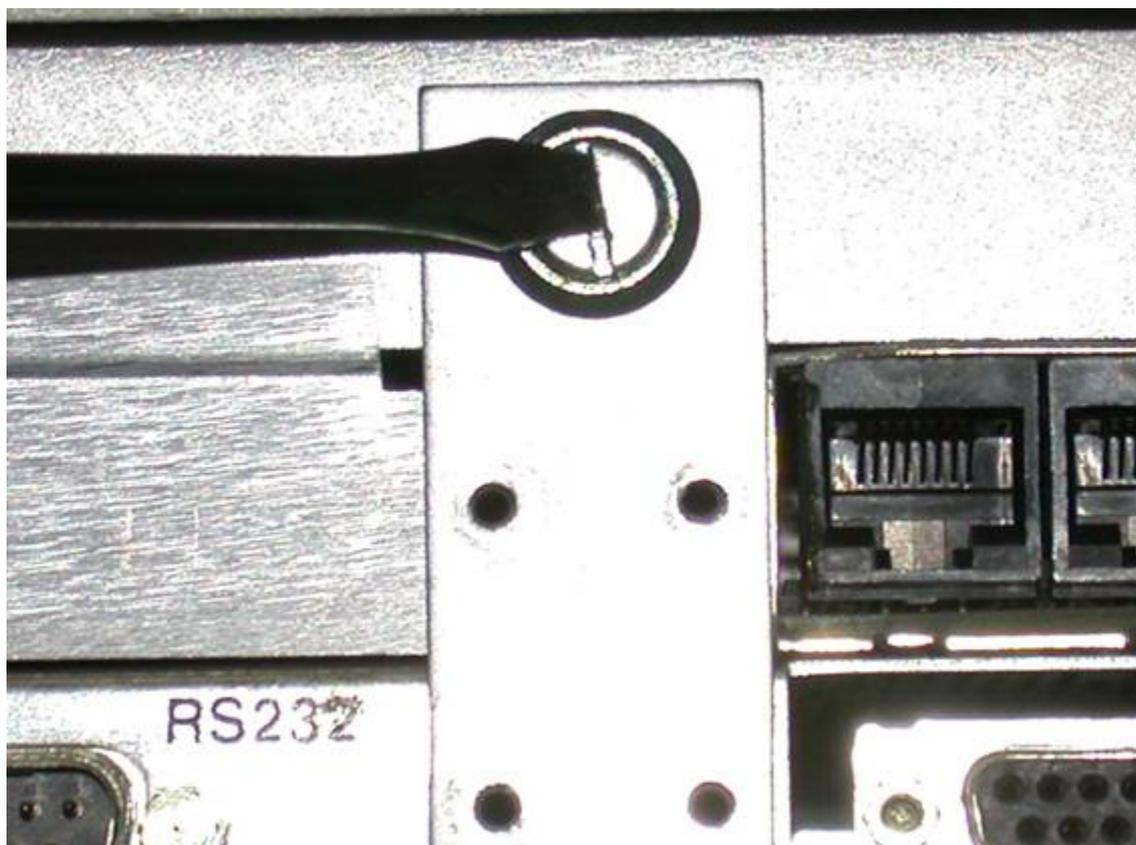
Removing the center strap



Remove all the screws on the center strap as shown above. Set these aside in a safe place so they don't get lost.

Step 4 (cont.)

Removing the center strap

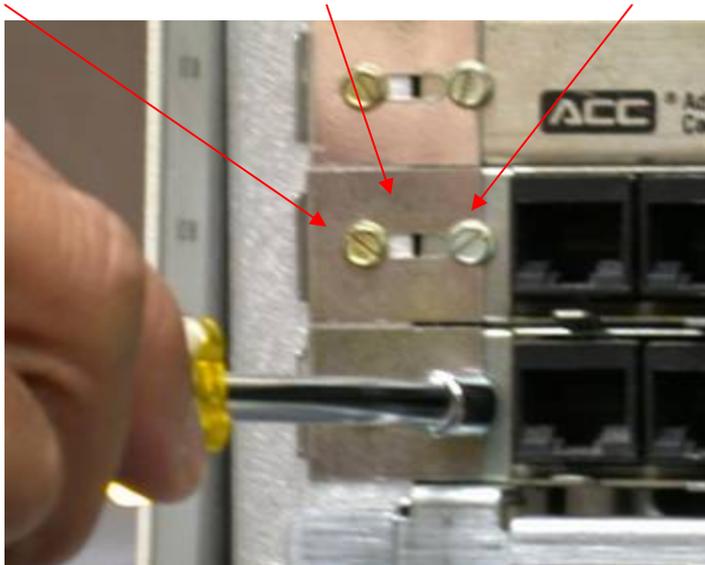


Loosen the top screw $\frac{1}{4}$ turn and remove the center strap by lifting the bottom tab clear of the system board.

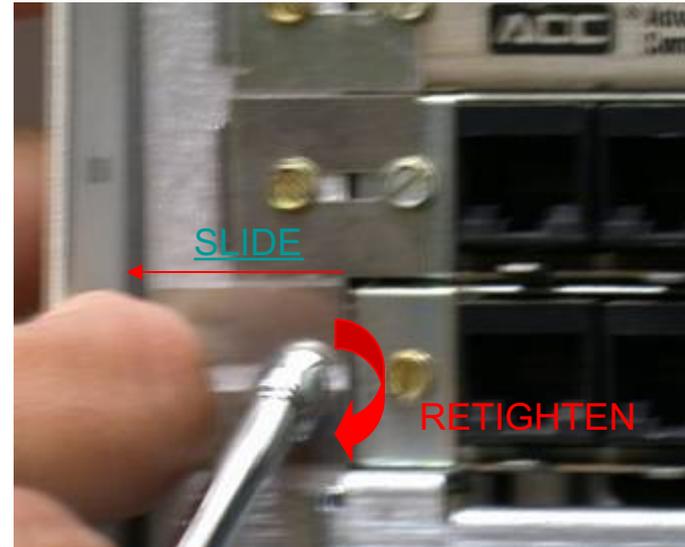
Step 5

Loosening the retaining tabs

Outside screw – Retaining clip - Inside screw



Loosen inside screw.



Loosen outside screw then, sliding clip aside and retighten screw.

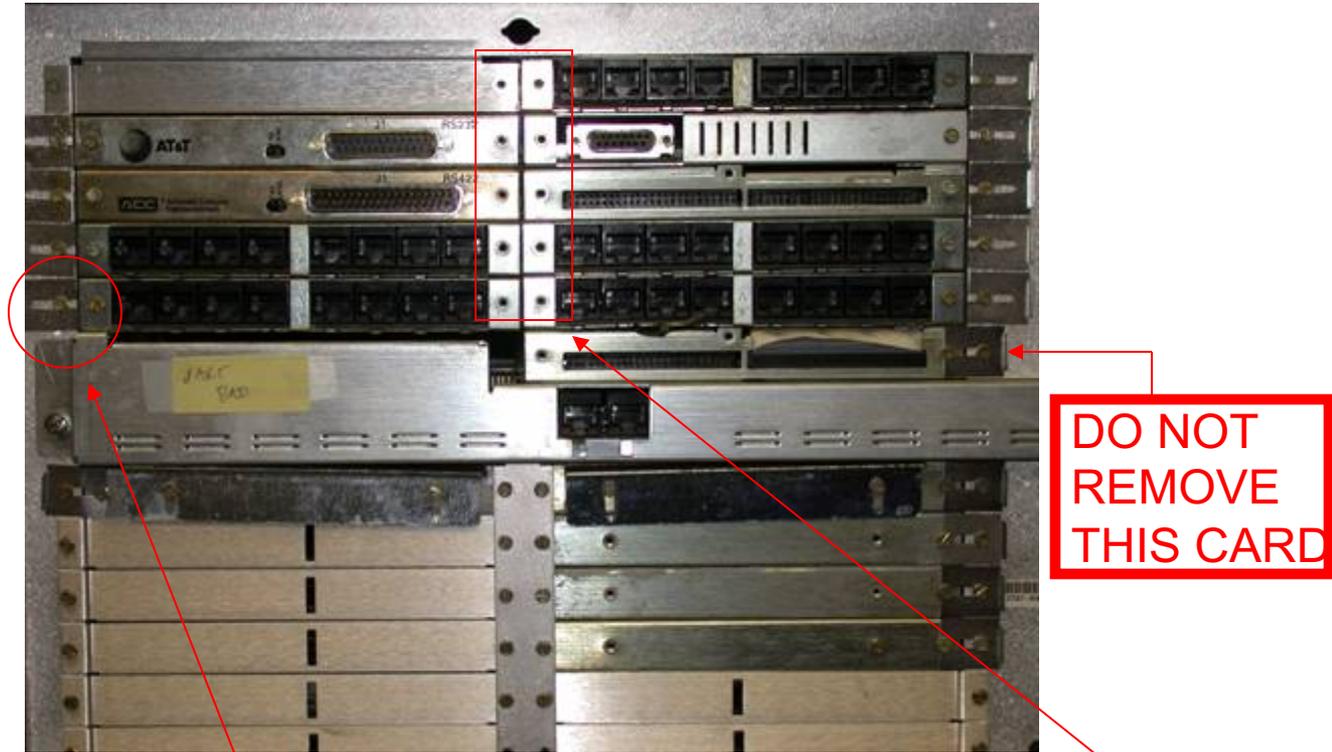
Loosen the screws of the feature card retaining clips:

- 1) Loosen ($\frac{1}{2}$ turn) inside screw.**
- 2) Loosen ($\frac{1}{2}$ turn) outside screw**

While the tool is still engaged slide the retaining clip aside and retighten the screw.

Step 6

Ready for pulling



Above picture shows 3B2 ready for backplane reconfiguration. The center strap has been removed and the retaining clips have been slid aside and secured. DO NOT remove the Single Ended SCSI controller board in I/O slot 1.

Step 7

Begin pulling the cards



Insert the ends of the card puller on either side of the card (left). Small tines on the ends of the tool will engage the back side of the card with a “snapping” sound, allowing you to unseat the unit with a sharp tug/pulling motion (right).

As stated in the previous slide (Step 6), DO NOT remove the Single Ended SCSI controller in I/O slot 1. If it is ever necessary to do so, follow the steps detailed in “SCSI Card Replacement” at this link:

http://www.afpc.randolph.af.mil/tac/Authorization/PCIII/SCSICARD_files/slide0001.htm

Step 8

Two configurations

The PC-III systems in the field are equipped in two “styles” or configurations. In order to rearrange your feature cards properly, you must first determine if your system is equipped with or without a DIFFERENTIAL SCSI controller.

- 1) DIFFERENTIAL – All gateways, some Active Duty Cores, some EPs
- 2) SINGLE ENDED – All ANG/Res Cores, some EPs

Your system is configured “DIFFERENTIAL” if it contains the card below in addition to the SINGLE ENDED card in I/O slot 01:

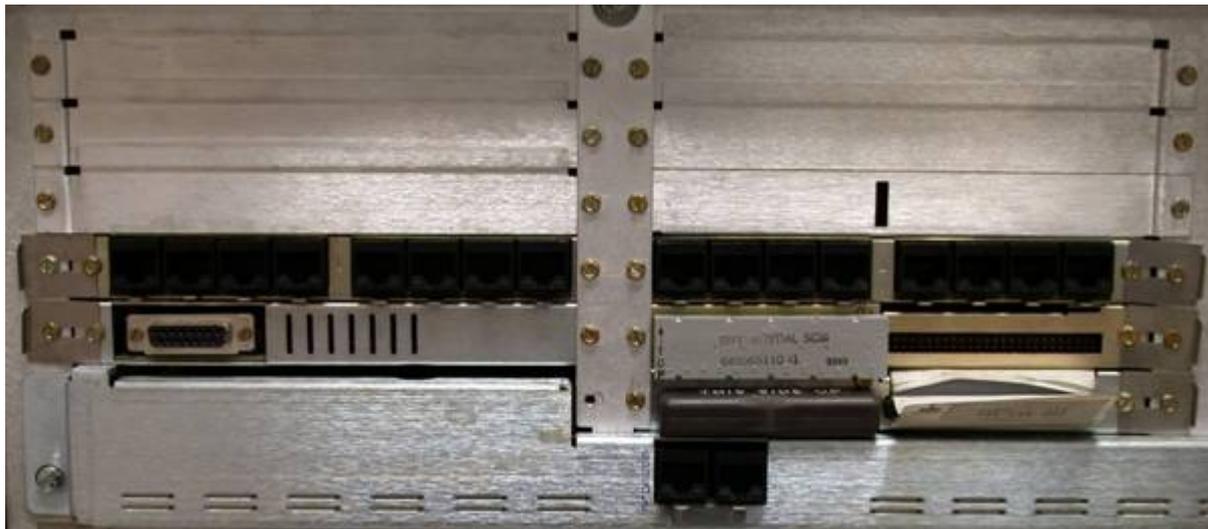


Step 8 (cont.)

DIFFERENTIAL configuration

The picture below shows the arrangement of feature cards in a PC-III system configured with a DIFFERENTIAL SCSI controller in I/O slot #3. Reinstall the feature cards in the arrangement pictured if your system is equipped with a differential SCSI controller.

**S
L
O
T
#**
6-EPORT
4-NAU



**S
L
O
T
#**
EPORT-5
DIFF SCSE-3
S/E SCSI-1

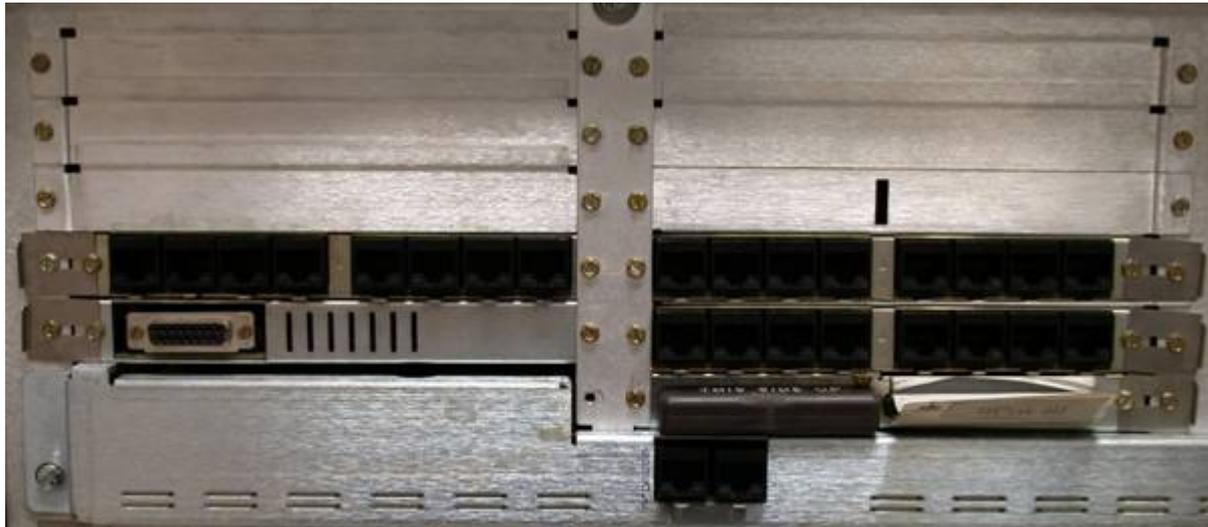
Step 8 (cont.)

Single Ended Configuration

The picture below shows the arrangement of feature cards in a PC-III system configured with a Single Ended SCSI controller in I/O slot #1. Reinstall the feature cards in the arrangement pictured if your system is equipped with a Single Ended SCSI controller only.

**S
L
O
T
#**

**6-EPORT
4-NAU**



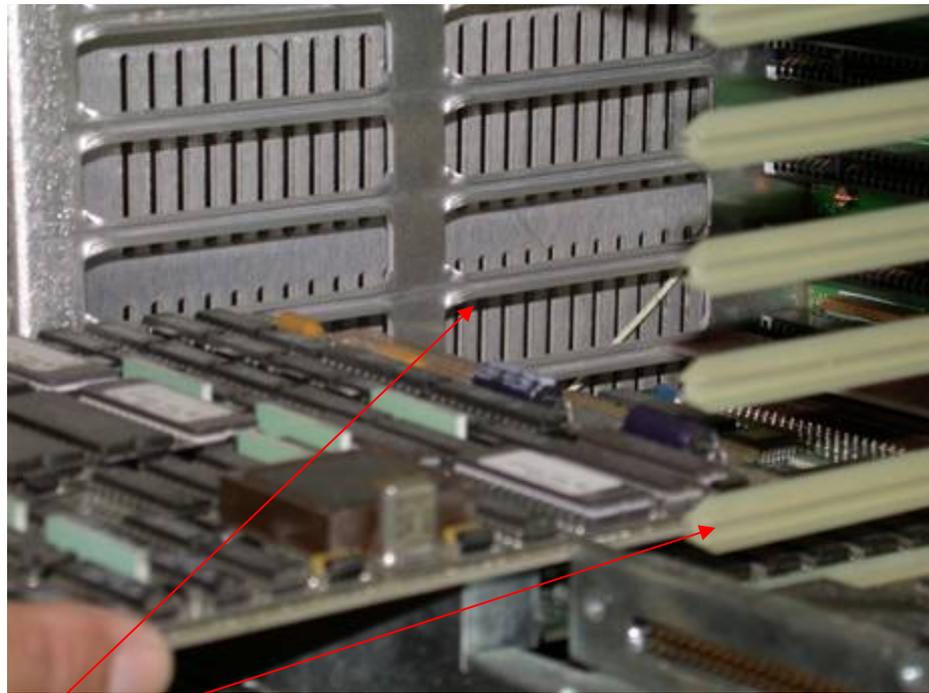
**S
L
O
T
#**

**EPORT-5
EPORT-3
S/E SCSI-1**

Step 9

Installing the feature cards

After determining which of the two configurations will apply to your system, install the cards in the order specified in the previous slides.



Note the grooves/rails that guide and align feature cards to the system's backplane.

Step 10

Installing the new cover plate



After removing excess feature cards (EPORTS, DDN, FXM, &etc), the void that is left should be covered with the sheet metal plate provided. Install as shown using the additional retaining clips and screws provided.

Finishing touches

This completes the reconfiguration of your system. Reconnect the power, console, LAN and SCSI cables previously disconnected. Remember to pay close attention to the SCSI cable connection and not bend any pins. Ensure the card is properly terminated and the cable is connected with the words “this side up” visible when looking at the cable as previously mentioned at the beginning of this presentation.

Contact HQ AFPC/DPDOST (the “TAC”) for assistance in returning excess feature cards and removing them from your ADPE inventory.