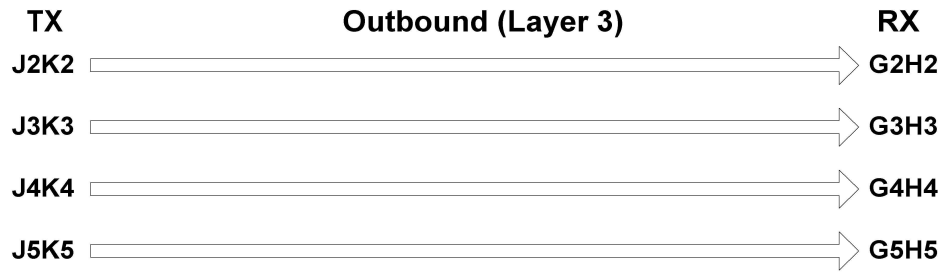
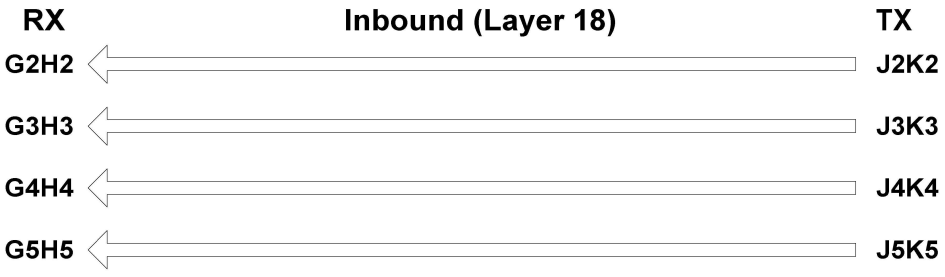
Molex FR 408 Backplane

- More detailed information on the nomenclature, backplane construction and measurement method is available in file "GBX FR408 Reference Backplane Overview-Rev1.pdf".
- The backplane is fabricated from Isola FR408 lead-free compatible PCB laminate.
- The backplane contains two sets of four channels:
  - Outbound channels
    - These channels are in layer 3, which is near the top of the stack.
    - Outbound traffic moves from left to right.
    - Vias on this channel have been backdrilled.
  - Inbound channels
    - These channels are in layer 18, which is near the bottom of the stack.
    - Inbound traffic moves from right to left.
    - Vias on this channel have been backdrilled.
- Each channel consists of a backplane plus two connectors plus two daughter cards.
  - Total channel length is 1 meter.
  - 2.5 inches of channel length is contained in each daughter card for a total of 5 inches over two cards. The remaining portion of channel length is in the backplane.
  - GbX™ press-fit connectors are used.
  - The channel pitch in the backplane is typically 1.85 mm.
- Nomenclature
  - The basis for the channel naming convention is depicted in the graphic below.





  - An example of the channel naming convention follows:
    - Channels are labeled in the first position according to the connector pins on which signal is injected (JnKnXX).
    - Channels are labeled in the second position according to the connector pins on which signal terminates (XXGnHn).
    - Overall channel direction is designated by folder label, either outbound or inbound.

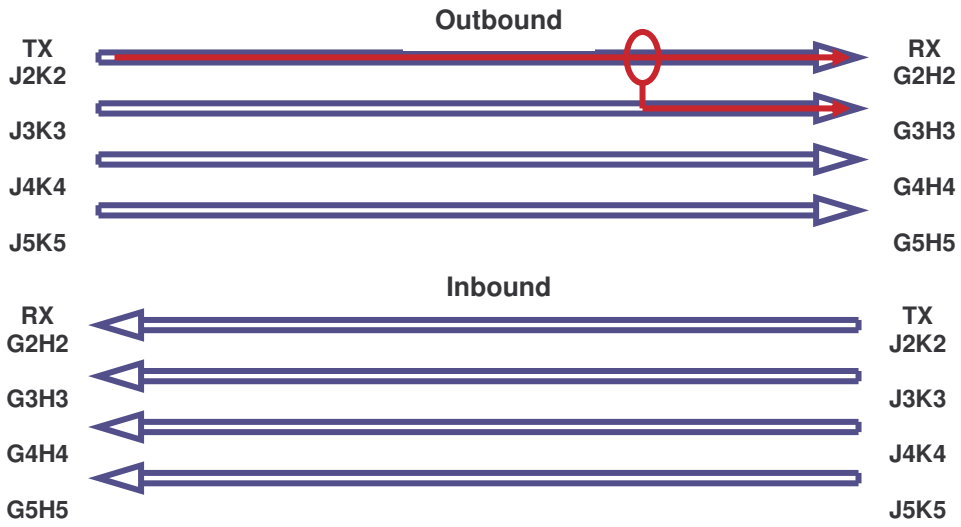
- Through channel S-parameter data:
  - In the case of thru channels, the signal injection pair is hardwired to the terminating pair. Thru channel pair data is distinguished by placement in “Thru Channel” folders.
  - Data are provided for each of the four outbound channels and the four inbound channels
  - File names are consistent with the channel names. For example, data obtained by driving Tx pin pairs J2K2 and detecting signal on hardwired Rx pin pair G2H2 is in a file named “sj2k2g2h2_SPARS.s4p”.
  - The Outbound Thru Channels include:
    - J2K2G2H2
    - J3K3G3H3
    - J4K4G4H4
    - J5K5G5H5

    → Located in Outbound Thru Channel Folder

- The same naming convention applies to inbound channels.
  - The Inbound Thru Channels include:
    - J2K2G2H2
    - J3K3G3H3
    - J4K4G4H4
    - J5K5G5H5

    → Located in Inbound Thru Channel Folder

- Crosstalk channel S-parameter data:
  - In the case of crosstalk channels, the signal injection pair is coupled to the terminating pair.
  - Far end crosstalk measurements were made by using each of the channels in turn as an aggressor and measuring the effect on the three remaining victim channels in the same layer.
  - FEXT pairs terminate at designated Rx pin pairs in the same layer and group as the Rx thru pair. Far end crosstalk pair data is distinguished by placement in the FEXT channel folder.
  - FEXT example is depicted below. The file corresponding to the measurement in which the aggressor signal was applied on Tx pin pair J2K2, and the victim signal was measured on far-end Rx pin pair G3H3 is named “sj2k2g3h3_SPARS.s4p” and will be found in the Outbound FEXT channel folder.



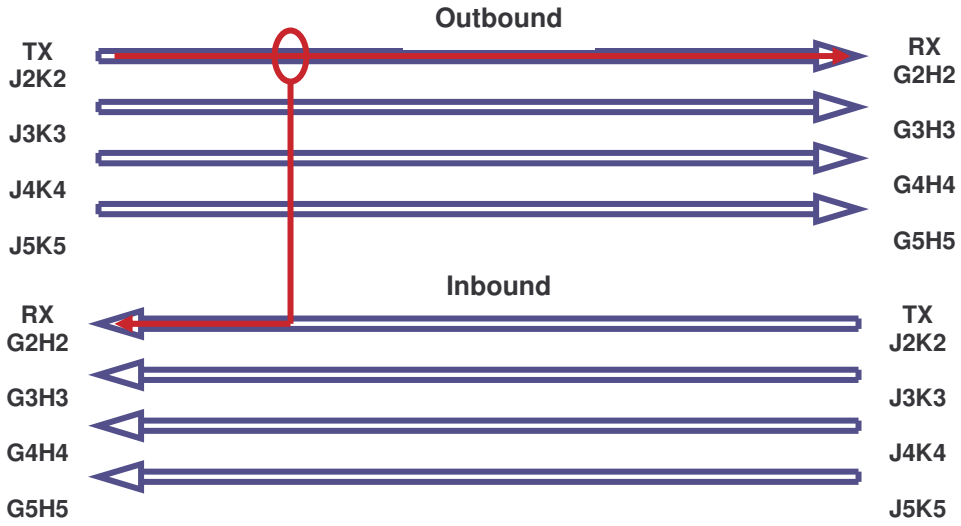
- As an example, the Outbound FEXT Channels associated with the Outbound Thru J2K2G2H2 channel are:
  - J2K2G3H3
  - J2K2G4H4
  - J2K2G5H5

  → Located in Outbound FEXT Channel Folder

- As an example, the Inbound FEXT Channels associated with the Inbound Thru J2K2G2H2 channel are:
  - J2K2G3H3
  - J2K2G4H4
  - J2K2G5H5

  → Located in Inbound FEXT Channel Folder

- Near end crosstalk measurements were made by using each of the channels in turn as an aggressor and measuring the effect on the four victim channels in the other layer. For example, if the aggressor signal was applied to near-end Tx pin pairs J2K2 in the outbound layer, victim signal measurements would be made at all four Rx channel pairs in the inbound layer.
- NEXT pairs terminate at designated Rx pin pairs in the alternate layer. Accordingly, there are four NEXT pairs for each Tx signal injection pair. Near end crosstalk pair data is distinguished by placement in the NEXT channel folder.
- NEXT example is depicted below. The file corresponding to the measurement in which the aggressor signal was applied on near-end Tx pin pair J2K2, and the victim signal was measured on near-end Rx pins G2H2, is named “sj2k2g2h2_SPARS.s4p” and will be found in the Outbound NEXT channel folder.



- As an example, the Outbound NEXT Channels associated with the Outbound Thru J2K2G2H2 channel are:

  - J2K2G2H2
  - J2K2G3H3
  - J2K2G4H4
  - J2K2G5H5

  → Located in Outbound NEXT Channel Folder

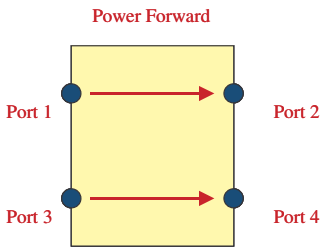
- As an example, the Inbound NEXT Channels associated with the Inbound Thru J2K2G2H2 channel are:

  - J2K2G2H2
  - J2K2G3H3
  - J2K2G4H4
  - J2K2G5H5

  → Located in Inbound NEXT Channel Folder

♦ Port numbering scheme

- Ports are numbered as follows:



- All unused ports are terminated with 50-ohm loads.

End.