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AN-103
APPLICATION NOTE

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Using The Patchpanel to convert between connector series
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The Patchpanel is a highly flexible connectivity solution for the test and measurement industry. What it provides is a rapid release coaxial and/or pogo pin connection between the rack and stack or modular test system and the DUT. This interface is both robust and economical, provides a broadband RF and or POGO pin interface. This enables loadboards to be easily interchanged giving the flexibility of a tester but at a fraction of the cost.

Precision alignment and connector float is provided to avoid damage during changing, but should any connectors become damaged replacement is still very simple and economical.

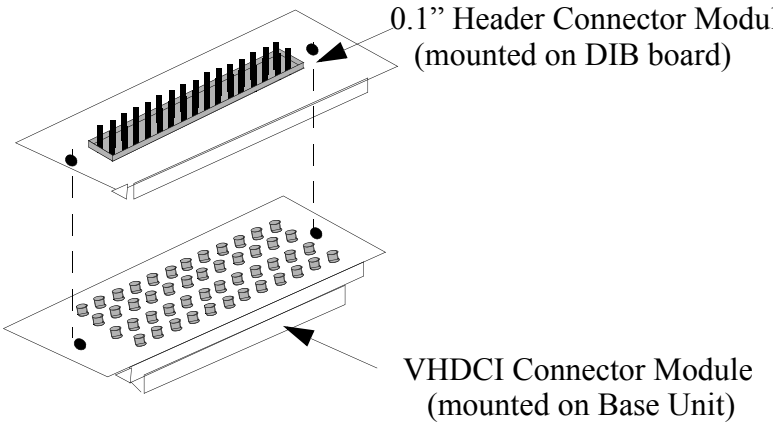
RF Connector Conversion
The Patchpanel uses precision SMP connectors to connect between it's base unit and Interposer or Custom Dut Interface Board (DIB). However on the base unit there are two user interface options either SMP which is good to 40GHz operation, or precision SMA which is good to 26GHz. Likewise on the DIB we offer a choice of SMP or precision SMA connectors. It is therefore possible to specify SMA connectors for the base unit and SMP connectors for the DIB thus achieving a multi-channel between-series conversion. Likewise it would be possible to do the reverse with precision SMA's on the DIB and SMP's on the base unit. The only down-side for doing this is that each channel bandwidth is limited by the lowest frequency connector, hence for an RF conversion as described the bandwidth is limited to 26GHz. Naturally the patchpanel can also be specified with SMS connectors on the DIB and base unit and still have 26GHz bandwidth. Or for performance-critical applications we recommend SMP's on the DIB and base unit which would then realize the Patchpanel's highest available signal bandwidth of 40GHz.
Figure 1 below shows a typical rack and stack test system application, how Patchpanel could be utilized in such a system, it also shows how this could the be migrated to a full custom loadboard.

POGO Pin Connector Conversion
For Data, Audio, control, power, or RF frequencies below 500MHz the pogo pin interface offers an extremly versatile high-density multi-channel interconnect which can also be used to convert between connector series. This is an extremely useful feature because unlike the RF case, buying off-shelf between series connectors is extremely difficult.

Example: Connecting a PXI Instrument with a VHDCI connector to the DUT board which uses an 0.1" header as it's interface. For this the base unit would be specified with the appropriate number of pin VHDCI connector premitting a direct off-shelf cable to connect the Patchpanel to the PXI instrument. However for the DIB board we would specify an 0.1" header permitting a ribbon cable to connect from the DIB to the DUT board. The conversion has been done by the Patchpanel

because effectively we have gone from VHDCI to pogo pin, then from pogo pin to 0.1” header. The high degree of flexibility with the Patchpanel and it’s modular construction means that we can convert between many different connector series, even on different connector modules within the same Patchpanel if we wish.

Fig 1 VHDCI to 0.1’ Pitch Header conversion using Patchpanel



Options that are currently available on the DIB board are:

0.1” pitch header
D-Sub 9,15,37
96 Pin Eurocard
VHDCI 68,80,140
RTI

Options currently available on the base unit are

VHDCI 68,80,140
D-Sub 9,15,37
Silent D
96 Pin Eurocard
SCSI
RTI

By using a combination of any of these options a conversion between any of the above connector series can be achieved.