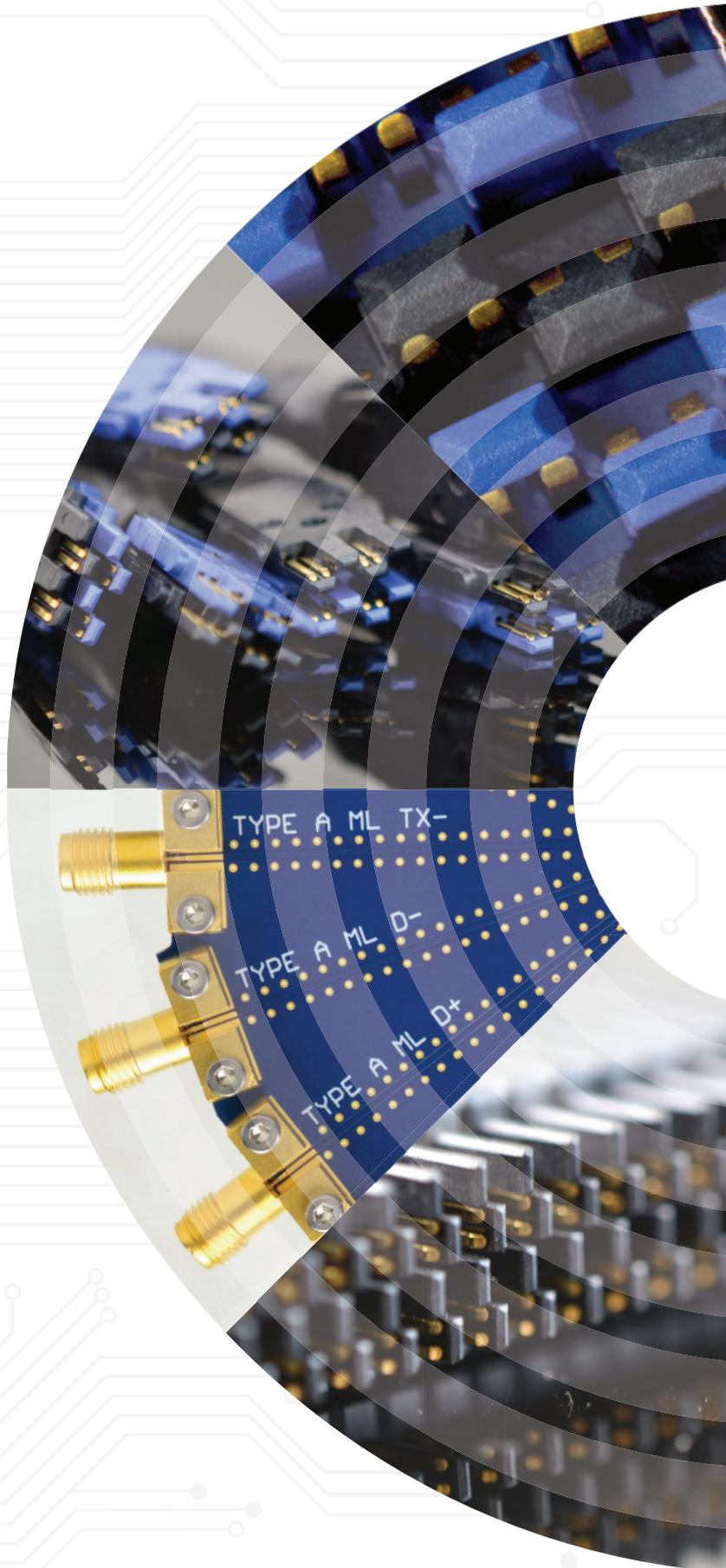


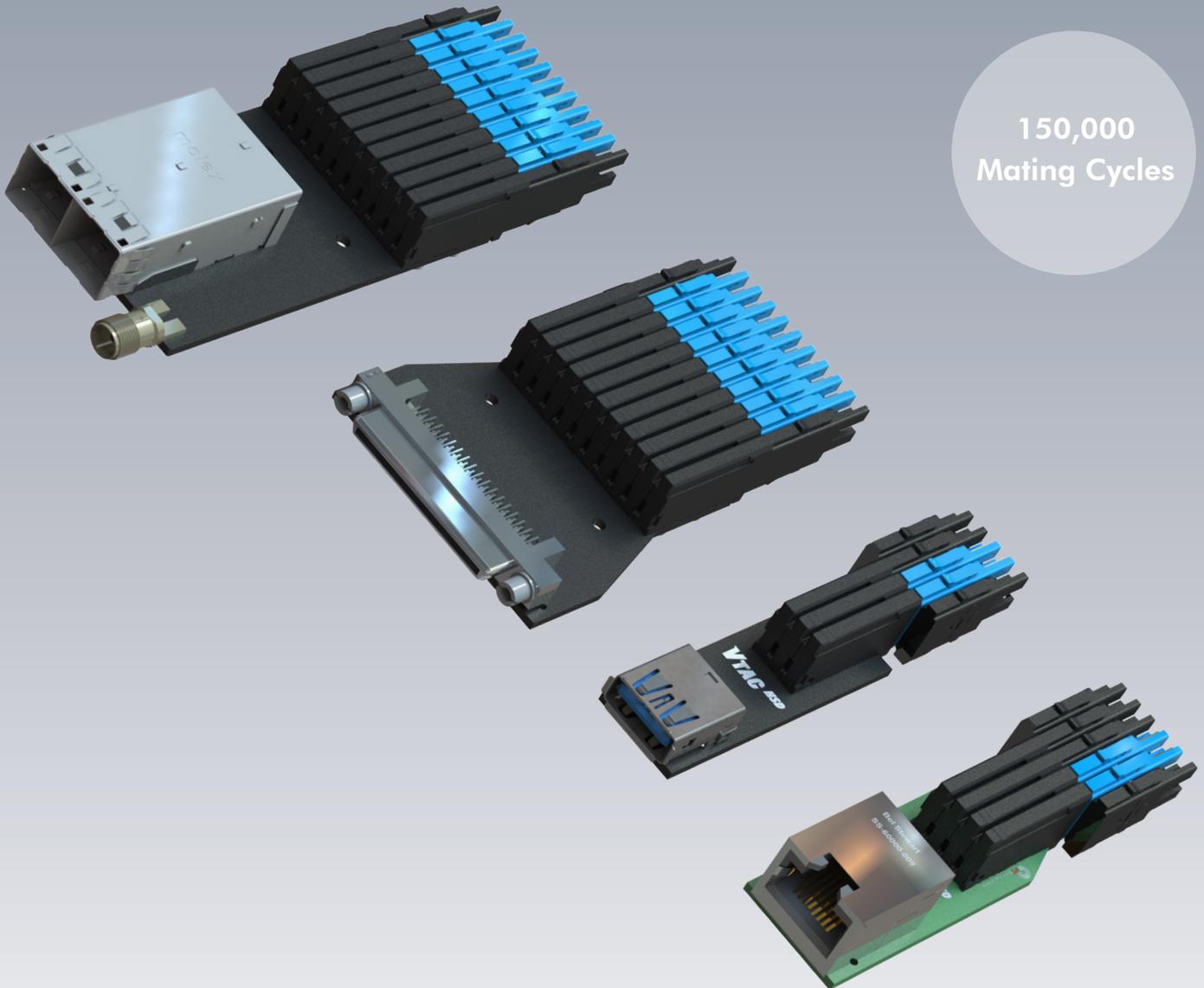
VTAC *HSD*

STANDARD IN HIGH SPEED TESTING



SETTING A NEW *STANDARD*

Introducing VTAC right angle inserts. Following the success of VPC's VTAC High Speed Data (HSD) contact, our engineering team developed a new right angle PCB configuration that is capable of providing transfer speeds of more than **10 Gbps** per differential pair.



150,000
Mating Cycles

High Speed Connectors in Test and Measurement

Broadband speeds are integral to projects that require large data acquisition, and **VTAC right angle** provides the signal integrity to keep up with those speeds.

VTAC contacts are uniquely situated in differential pairs that isolate signals to reduce signal cross talk and preserve signal integrity when transmitting at high data rates. To ensure the best signal performance, our engineers focused their efforts on matching impedance. The insert uses a precision-tuned signal routing to ensure that each differential pair has 100 Ohms of impedance, guaranteeing compatibility with other connectors of the same impedance. Since our team focused on

quality and speed, test engineers can expect to use VTAC in their projects with minimal signal degradation.

VTAC right angle inserts are ideal for projects that require PCB solutions. The insert can transfer data at more than 10 Gbps per differential pair. When tested in our lab, our engineers have shown the same level of signal integrity, effectively cutting down signal disturbances like **Crosstalk and insertion loss**.

High speed testing can be an expensive investment. The need for an economical alternative for high speed connectors influenced our engineers to make the solutions COTS-ready,

highly serviceable, and modular. When used in PCB adapters, VTAC right angle inserts make pass-through connections easy to use. Should a contact fail, extraction tools are available to allow the user to replace a single insert instead of replacing the entire board.

VTAC right angle can be used anywhere that VTAC HSD has been used in the past. Our engineers designed the contact so the PCB version and cable version of VTAC can be intermixed in the same solution and even in the same module. VPC offers many variations of PCB solutions. Smaller versions that have only one protocol, like a single USB 3.0 connection, can be

added to a module while the rest of the module is configured with patchcords. VTAC right angle is available as an individual insert or as a preconfigured circuit board to accommodate a multitude of high speed protocols.

VTAC right angle inserts also double as a fast-break coupler. With a phillips head screw driver, the mounting bracket can be removed from the board, and the board can be removed from the module. A technician can service the board without disturbing the pass-through inserts that remain in the module.

For more information, please visit: vpc.com/RA

Features and Benefits



Modular

SIM inserts are compatible in 90 Series modules and i2 MX modules so that the solution can scale as needed.



Compatible

Compatible with multiple HSD standards like: USB 3.0, SATA, HDMI, DVI, Gigabit Ethernet, QSFP, Twinax, and 12x InfiniBand.

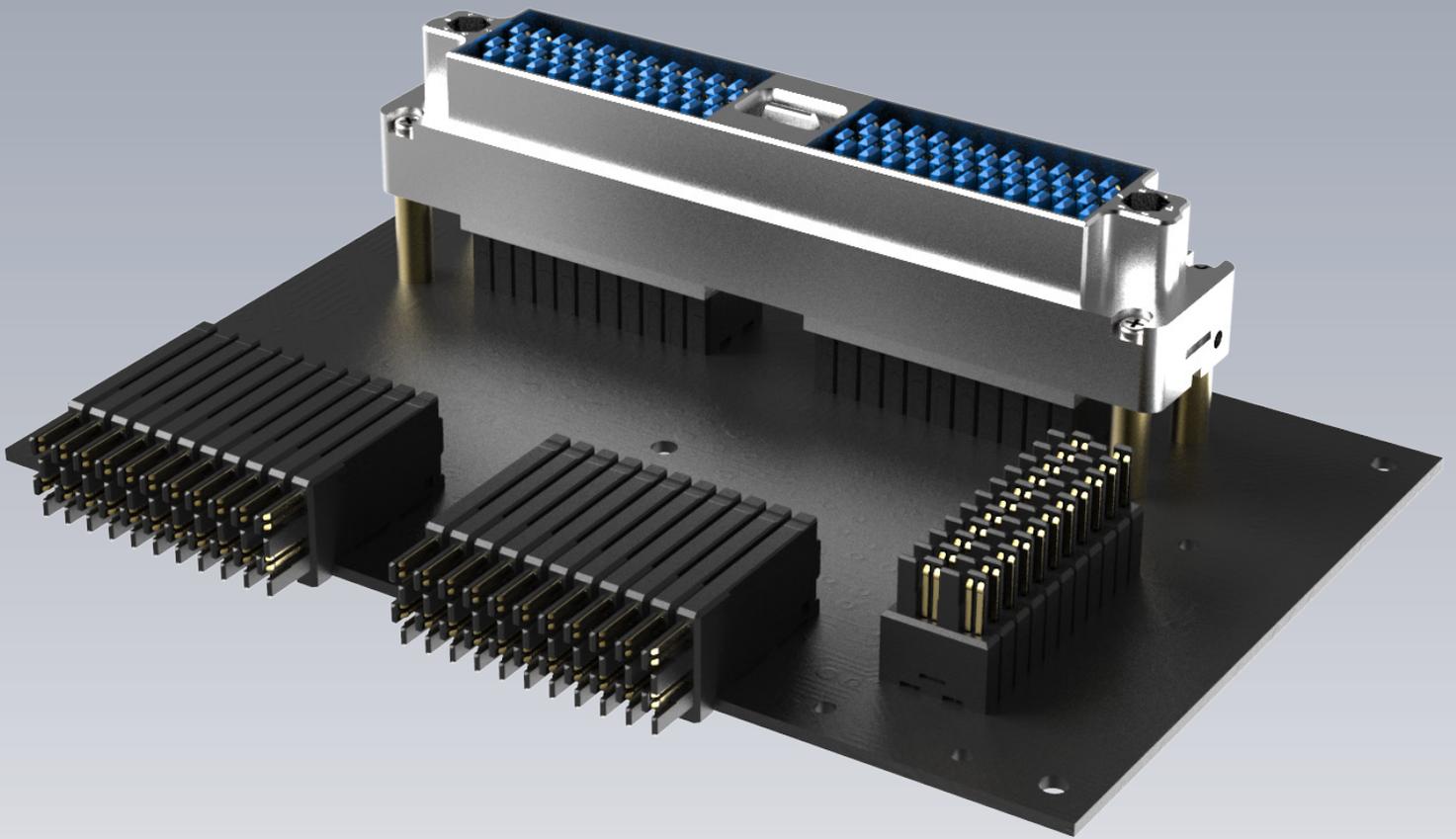


Serviceable

Replace contacts and inexpensive third-party cables instead of expensive printed circuit boards.

VERTICAL HEADERS *AVAILABLE*

The VTAC vertical header insert can be used in a wireless ITA configuration, perfect for self-tests of your ATE system. Paired with our QuadraPaddle vertical headers, the self-test ITA can perform a function test on the entire ATE system.



Backplane Connectors in Test and Measurement

Backplane connectors are engineered to increase data rates and decrease signal rise time to deliver a more reliable high-speed transmission with greater clarity. With PCB designed systems, backplane connectors are generally preferred to a cabled connector since cabled connectors will flex each time a PCB needs to be added or removed from a system. This flexing can

cause intermittent connectivity issues.

While this is generally a non-issue with VPC wiring since all VPC patchcords and cables are wired to industry standards using strain relief plates, high speed wiring does generally require a large bend radius so as not to impact signal transmission performance. This situation can be

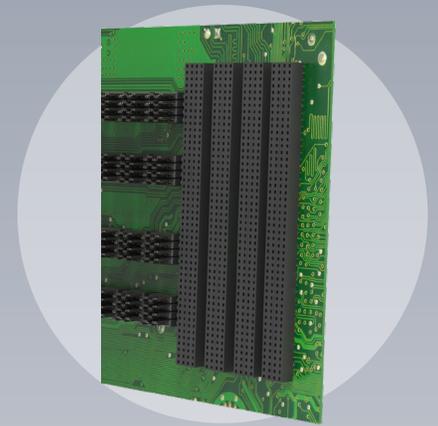
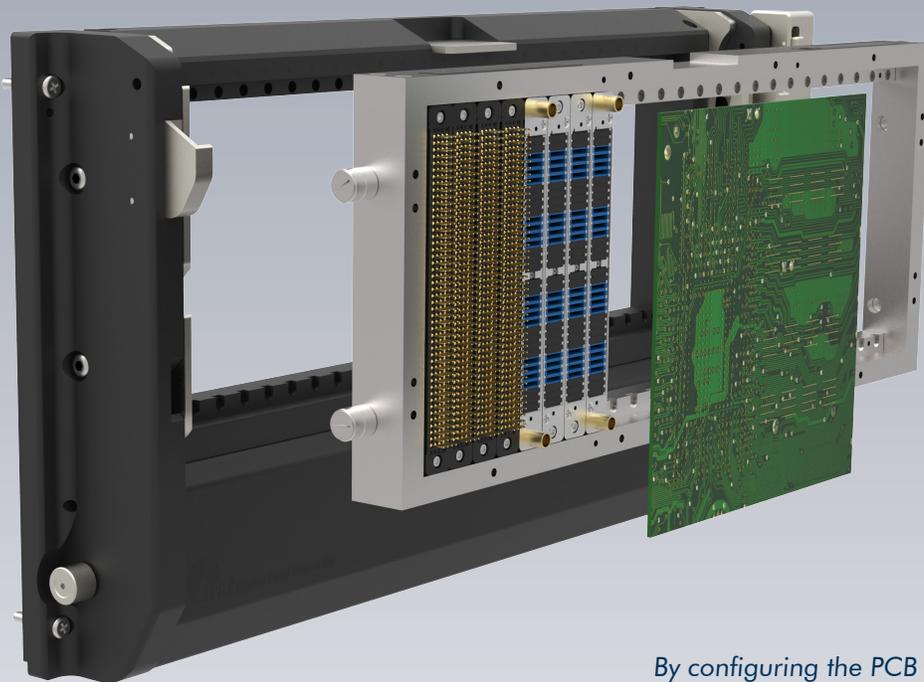
challenging in loop-back scenarios such as when performing self-tests on ATEs with high speed components.

Given the evident space requirements, our VTAC vertical header inserts are capable of delivering the same signal transmission fidelity and speed without the challenges of high speed wiring in a small work area. The

signal is able to travel from the instrumentation, through the interface, to the PCB, and back without deprecating the signal integrity.

All VTAC configurations are engineered to introduce as little variation as possible on the signal.

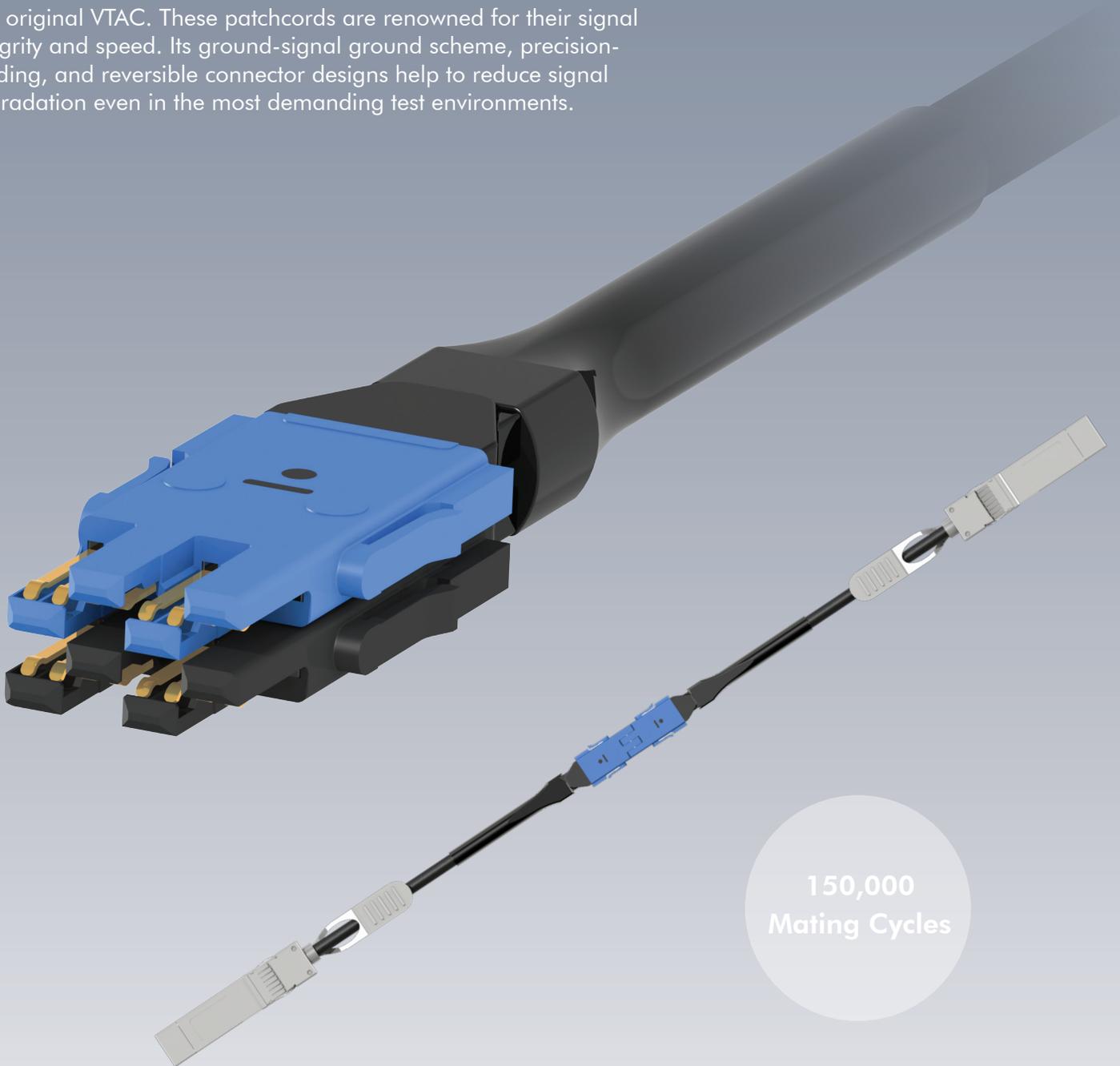
For more information, please visit: vpc.com/VTAC-vertical



By configuring the PCB with a backplane of VTAC vertical headers, the board can be mated with the modules in the ITA frame. This configuration enables loop-back signal transmissions to complete the function test.

HIGH SPEED DIGITAL PATCHCORDS

The original VTAC. These patchcords are renowned for their signal integrity and speed. Its ground-signal ground scheme, precision-welding, and reversible connector designs help to reduce signal degradation even in the most demanding test environments.



150,000
Mating Cycles

The Best Performing High Speed Patchcord Available

VTAC is quickly gaining market favor as multiple industries continue to adopt VTAC for high bandwidth data transmission and signal integrity testing. Its popularity is due in part to its compatibility with a variety of COTS digital protocols, such as: HDMI, USB 3.0, and Cat 6. VTAC's high data rate capability ensures

that no matter which third-party connector your test station uses, you will be able to get the maximum data rate possible when transmitting with VTAC technology.

Customers have begun keeping VTAC as floor stock. Its reversible design and high cycle life lends

itself well to floor stock since all single insert patchcords can be used as male or female leads. Its features are exceptionally user-friendly. An engineer only has to push the VTAC insert into its module and it snaps into place; no additional tools are necessary for assembly. For disassembly, a

simple extraction tool is used to compress the retaining clips for removal. Extraction tools can be stacked to remove multiple VTAC inserts simultaneously.

For more information, please visit: vpc.com/VTAC

Experience Minimal Insertion Loss

VTAC reduces resistance and increases signal integrity with a seamless transition from wire to connector. Signal integrity is an important component to any test setup, especially when it comes to testing with broadband data.

Properties of the signal transmission such as crosstalk, attenuation (insertion loss), return loss, impedance

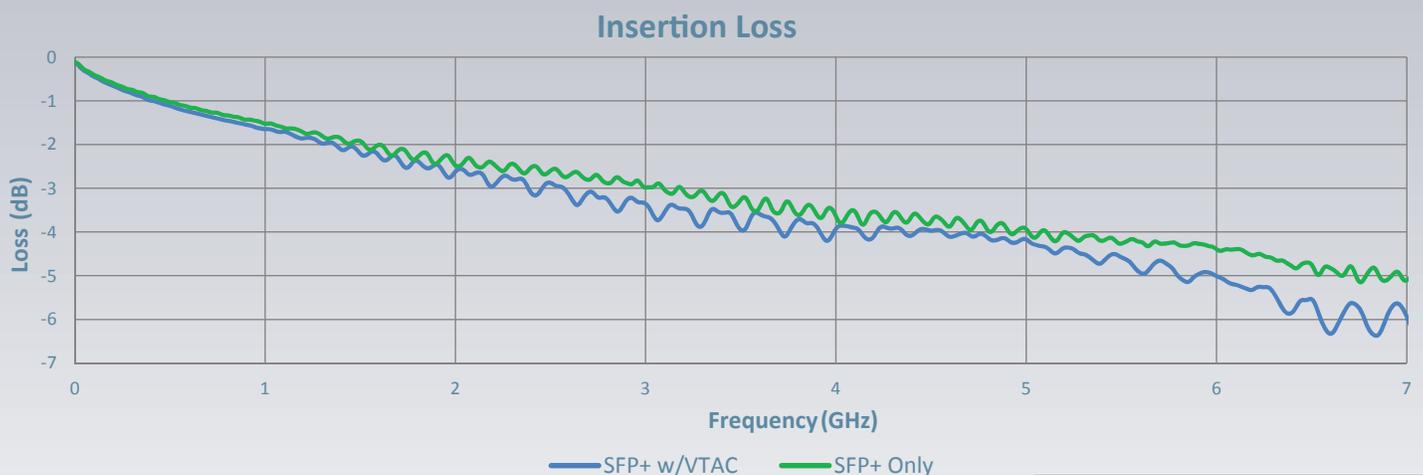
matching, and signal path are critical to successful testing. Additionally, connectors, printed circuit boards (PCB), and cables can have a significant effect on a signal's transmission speed and signal integrity. Each new connection creates an opportunity for signal degradation. Any failure to transmit or receive signals during a test creates potential for erroneous data that

would otherwise indicate a system failure or other problem not caused by the device under test (DUT).

The figure below shows the insertion loss of a one-meter-long patchcord with SFP+ terminations on either end. The second data line shows the same patchcord that has been bisected and terminated with VTAC connectors in its center. The graph

shows **no significant deviation** from the SFP signal until approximately 6.25 GHz. At 6.25 GHz, there is only -1dB of difference between the two patchcords, which is approximately a 10% loss.

For more information, please visit: vpc.com/VTAC-performance



AVAILABLE HIGH SPEED PROTOCOLS

ADDITIONAL INFO

vpc.com/VTAC-performance

VTAC is available as a patchcord or PCB solution. While both perform at exceptionally high rates, there is a slight difference in speed applications.

VTAC Insert Specifications

Data Rate	12.5+ Gbps per differential pair
Crosstalk	-40 dB min., wired -30 dB min., right angle
Characteristic Impedance	100 +/- 10 Ω per differential pair
Contact Resistance (Per Mated Contact)	30 m Ω max.
Insulation Resistance	1000 M Ω min.
Dielectric Withstanding Voltage	1050 VDC min.
Mating Force	12 oz max. [0.34 kg] per insert
Insert Material	Outer shell is black or blue LCP Male contact is alloy 7025
Contact Termination	Welded
Contact Plating	50 μ " Au over 100 μ " Ni

Protocols Supported

USB 3.0
USB 3.1
SATA
Mini-SAS
12X InfiniBand
DVI-I
DVI-D
DisplayPort
HDMI
SFP+
Cat 6
MRJ21
VHDCI
Rosenberger HSD



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