



**MERITEC**<sup>®</sup>  
*Innovative Interconnect Solutions*

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**VPX**<sup>®</sup> **PLUS**   
Design | Test | Deploy

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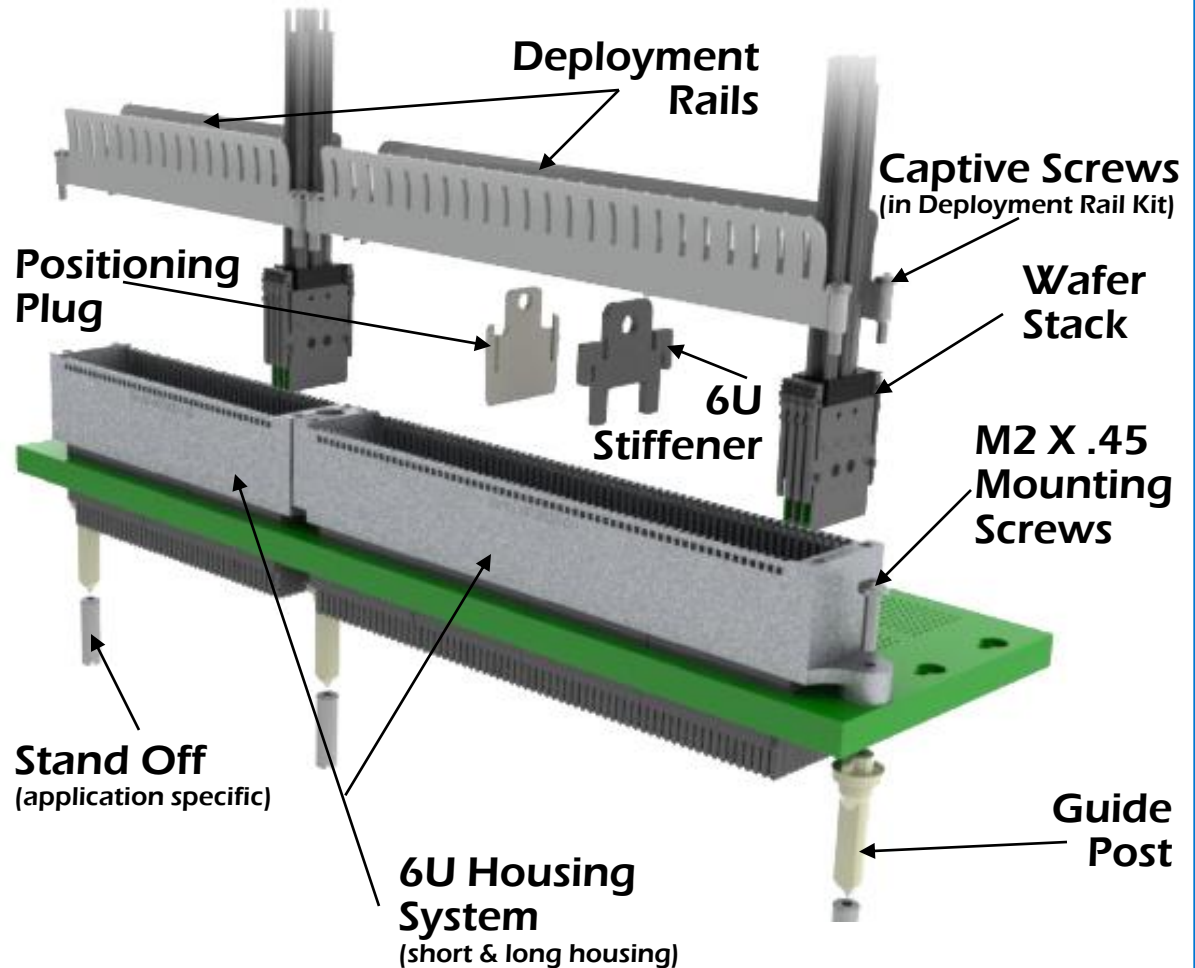
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# VPX<sup>PLUS</sup> | Overview

The Meritec VPX+® backplane cable interconnection includes a housing that fits around the backplane connector, and a series of cable end modules that are inserted into the housing. The housing and the modules are used in place of rear transition modules. Such rear transition modules are fundamentally very expensive because of size and complexity; and, therefore, are not easily replaced with new designs. Also, backplane circuitry, such as that in rear transition modules, has electrical losses that are greater than cable losses. The present interconnection satisfies a need that exists for a connection method that will allow backplane circuit rerouting with small electrical losses, while allowing the ability to be easily changed without large investment. The Meritec VPX+ System also satisfies the need for a backplane interconnection that will allow direct cabling between the backplane and the enclosure or between the backplane and an adjacent enclosure. Additionally, it will satisfy the need for a backplane interconnection that allows discrete probing of backplane circuitry by providing access at the backplane position. The Meritec VPX+ also allows ultimate flexibility when either cabling daughter-card position to daughter-card position, point-to-point, or when incorporating cable I/O from the backplane. This utility recognized the need for laboratory development experimentation and for ultimately deployable product having certain unique functions.



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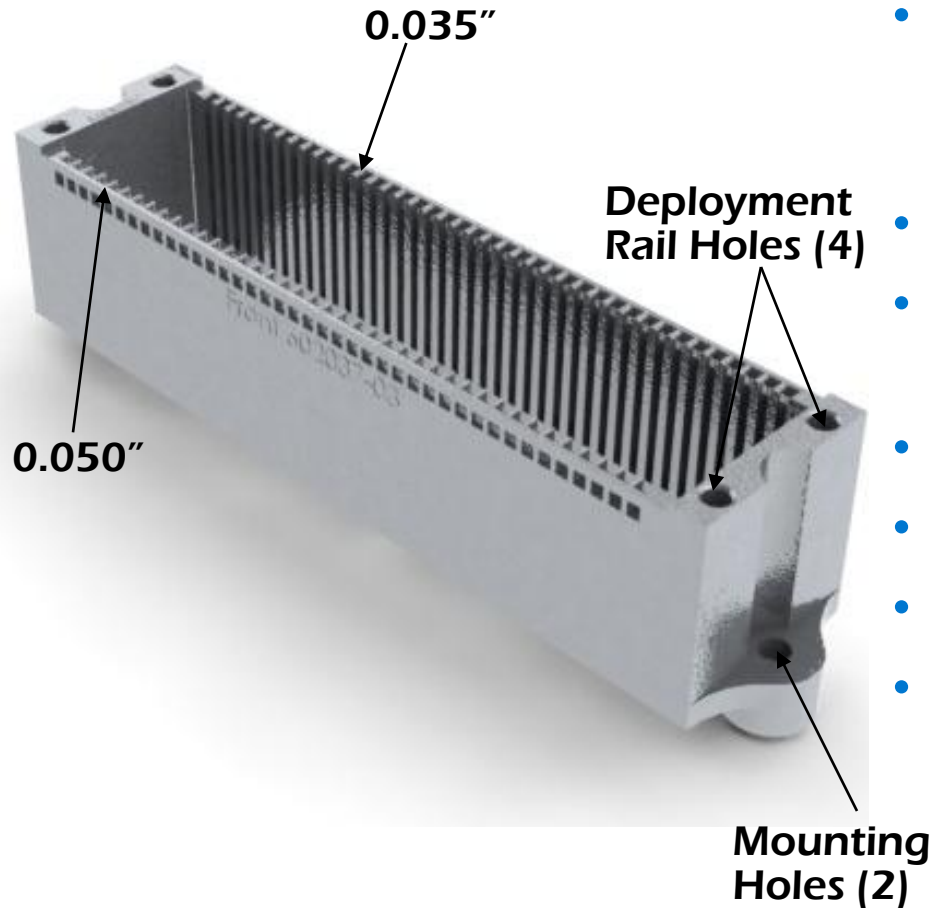
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**VPX**<sup>PLUS</sup> 

**Housing**

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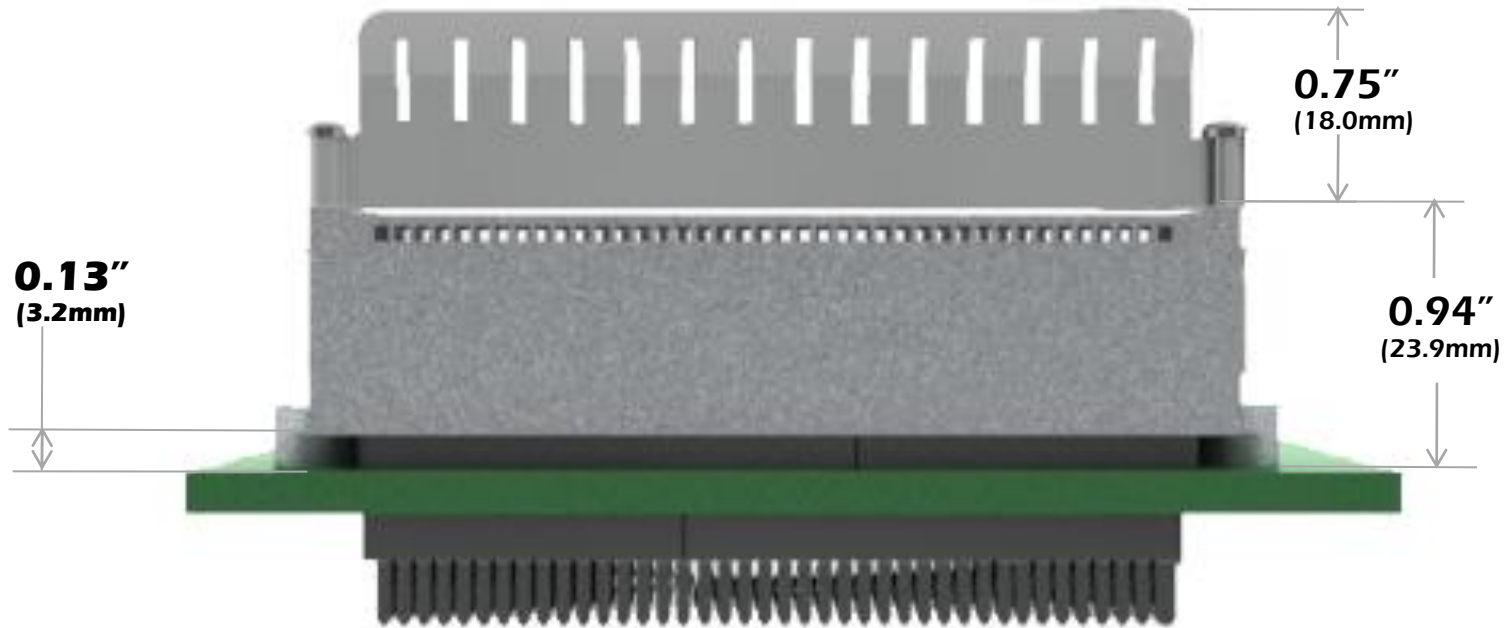


- 3U and 6U housing– Unique designs for Front & Rear backplane applications
- Nickel plated zinc alloy
- Compatible w/ VITA 46/OpenVPX mechanicals
- Pin 1 locator
- Polarized for wafers
- Threaded for deployment rails
- Designed for 0.8" to 1.0" center-center spacing



**6U overlays the 3U housing– A spacer is provided if 6U is used as a stand alone**

- 3U and 6U housing– can be used independently on front and rear of backplane

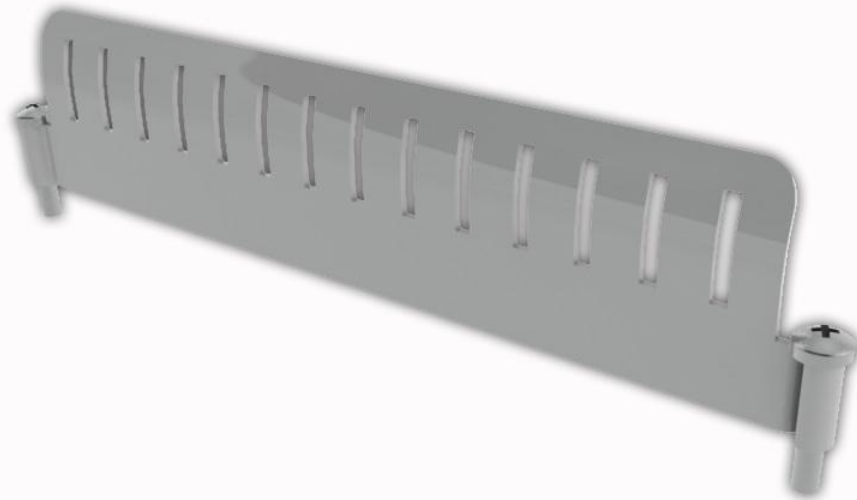
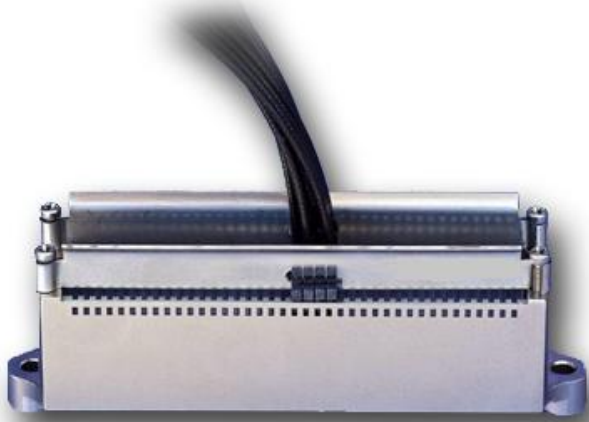


**VPX**<sup>PLUS</sup> 

**Hardware**

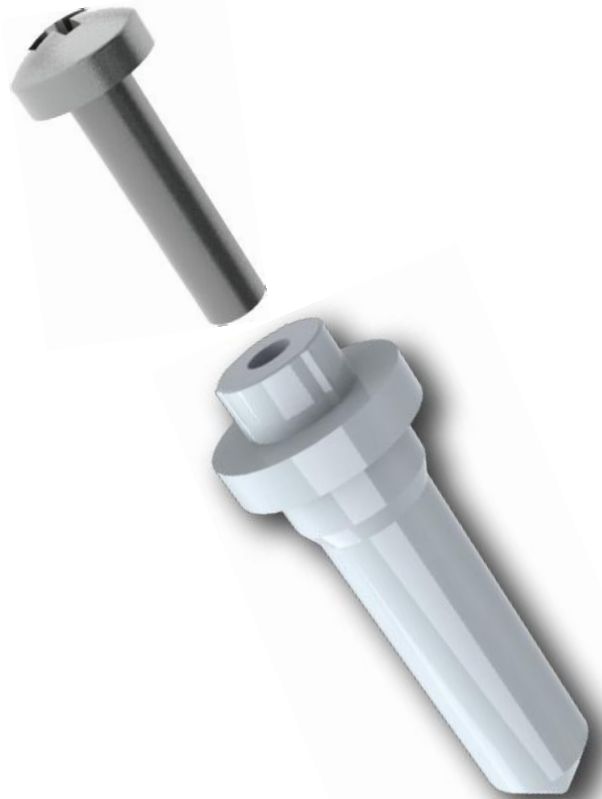
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## Deployment Rails:

- Mounted to housing with Captive Screws
- Provides additional support; rail is positioned between latch & polyamide overmold
- Ensures wafer retention in high vibration environment
- Slots allow use of tie wraps to provide strain relief to wire
- Captive screws
- Stainless steel construction



### Guide Pins:

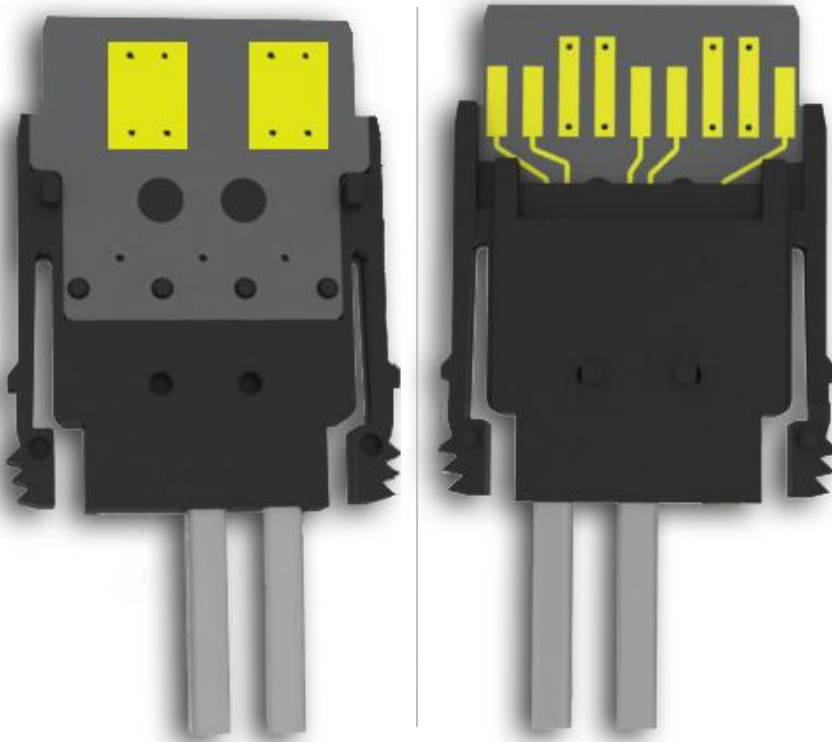
- Supplied w/ the housings, this VITA 46/Open VPX Compatible hardware replaces any current guide pins you may have
- Housing Kits supplied w/ 10mm, 12mm and 16mm (M2X.45) screws to accommodate backplane thickness

**VPX<sup>PLUS</sup>** | **Wafers**

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Wafer Shielded Side

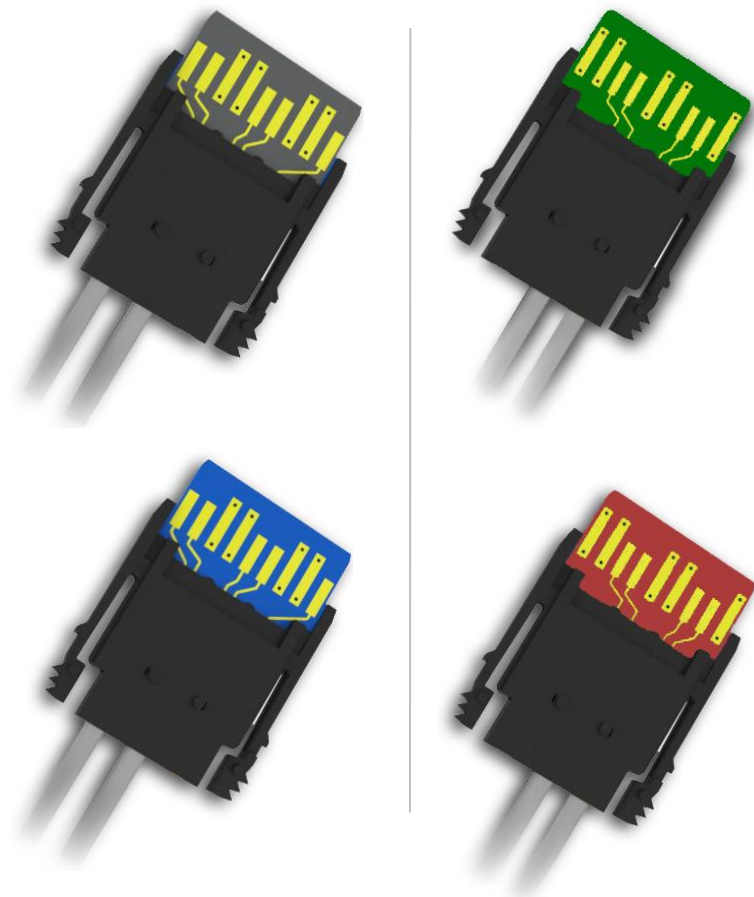
Wafer Signal Side



- Custom wafers will be fabricated to meet customer requirements
- Single ended serial wafers are designed upon request

Odd Row Wafer

Even Row Wafer



- Custom wafers can be fabricated to meet customer requirements
- PCBs designed for minimum skew
- Color coded for identification
- Over-molded for mechanical integrity

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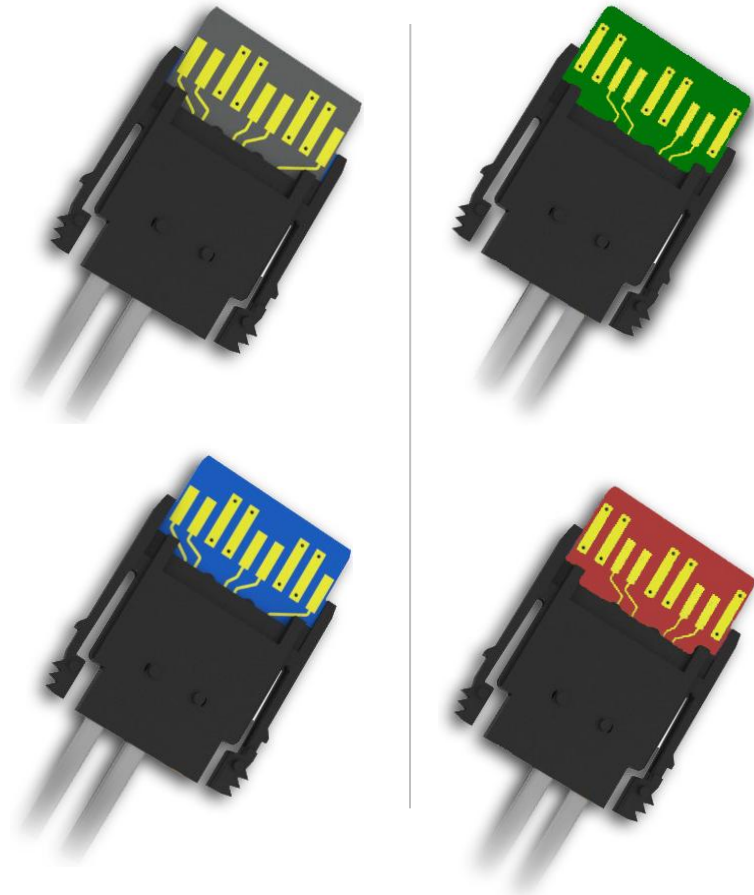
**VPX**<sup>PLUS</sup> 

**Wafer-Wafer Cables**

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Odd Row Wafer

Even Row Wafer



## 12" Wafer – Wafer Cable Specs

- Cable: 30Awg Stranded Coax
- Insertion Loss: <2.5dB up to 5GHz
- Return Loss: <10dB up to 5GHz
- Connector Impedance: 100 +/- 10% at 100ps rise time (20 - 80%)
- Within Pair Skew: <3ps ft
- Time Domain Crosstalk: <4% at 40ps rise time (-20 to +80%) from multiple aggressors



- Standard cable assemblies include 30Awg coax wired as:
  - Differential Pair (DP)
  - Single ended serial
- 4 Stacking Options

## Ultra Thin Pipe

1 wafer to 1 wafer w/ 2 DP connected

## Thin Pipe

2 wafers to 2 wafers w/ 4 DP connected

## Fat Pipe

4 wafers to 4 wafers w/ 8 DP connected

## Double Fat Pipe

8 wafers to 8 wafers w/ 16 DP connected

- Odd/Even Ultra Thin Pipe

24 Awg -19 Strand Teflon Hook-Up Cable

## Even Wafer

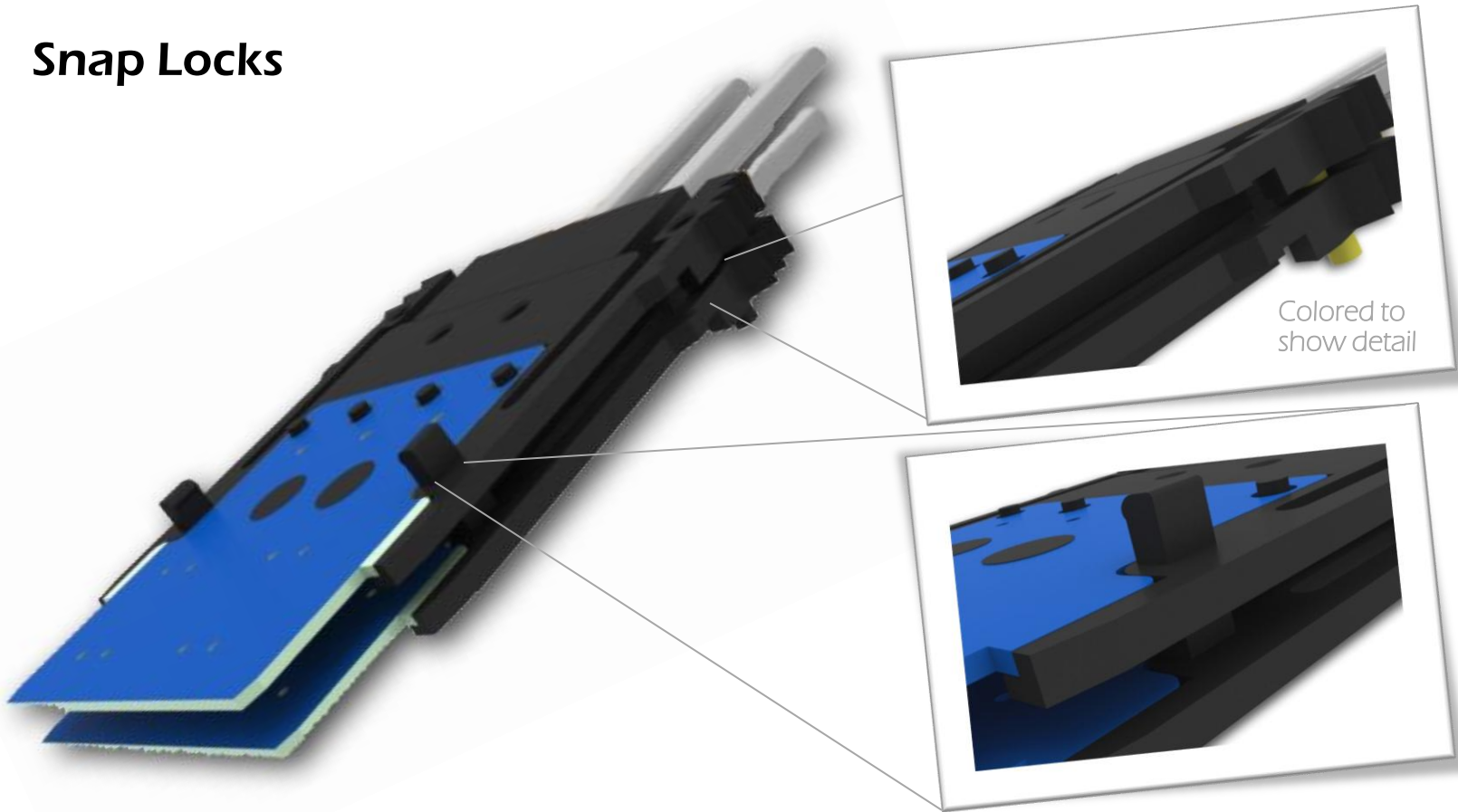
4 Lines in Position – C, D, G, H

## Odd Wafer

5 Lines in Position – A, B, E, F, I



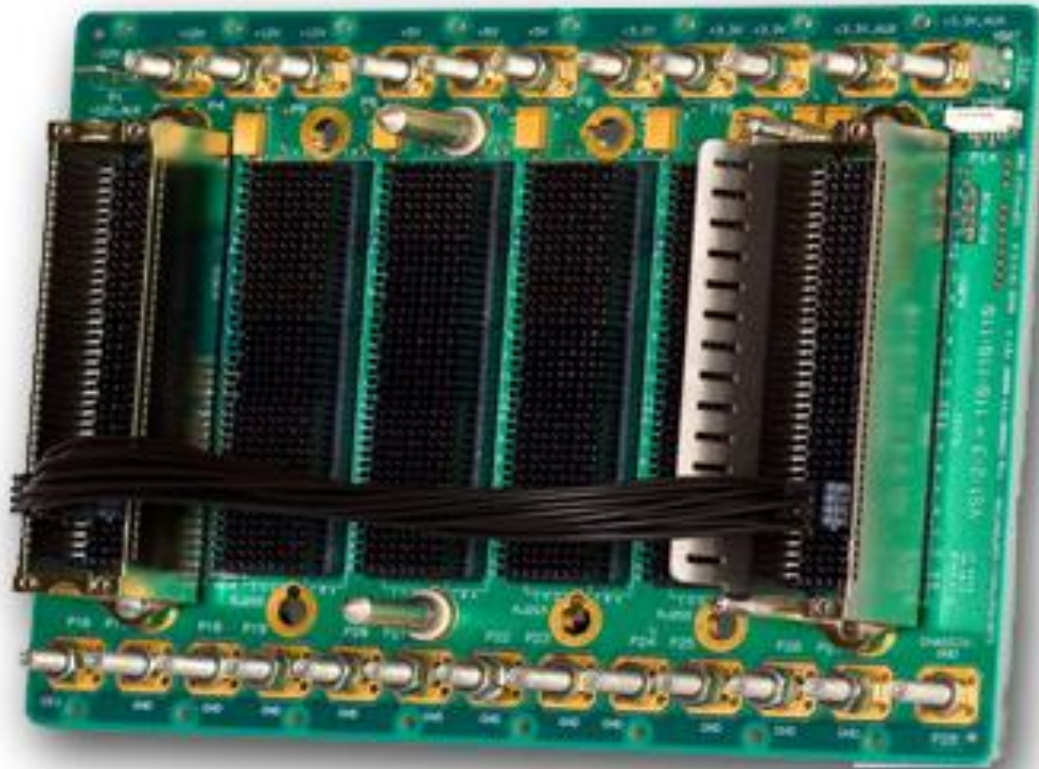
## Snap Locks



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## Fat Pipe from RJ1 module – RJ6 module



\*Deployment rail removed to show wafer stack

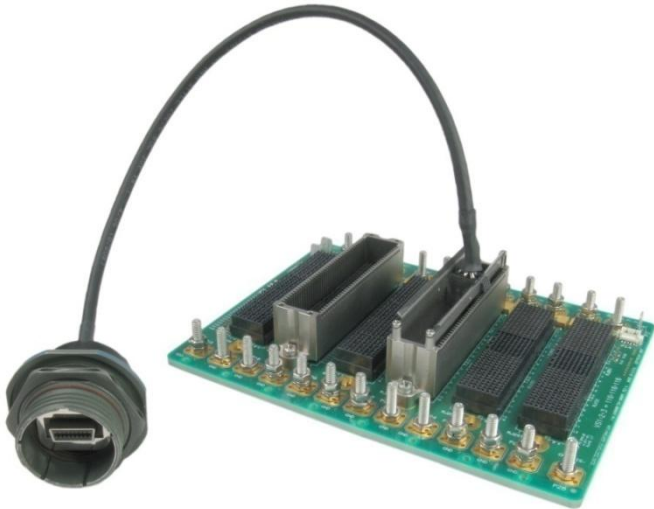
**VPX<sup>PLUS</sup>** | **Wafer - I/O**

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## Fat Pipe – CX4 Cable Assembly Specs

- Cable: 30Awg Stranded Coax
- Insertion Loss: <5.0dB up to 5GHz
- Return Loss: <10dB up to 5GHz
- Connector Impedance: 100 +/- 10% at 100ps rise time (20 - 80%)
- Within Pair Skew: <3ps ft
- Time Domain Crosstalk: <4% at 40ps rise time (-20 to +80%) from multiple aggressors



Fat Pipe – CX4  
embedded in 38999  
Shell



Fat Pipe – CX4  
Ultra Thin Pipe – SMAs  
Fat Pipe from RJ1 to RJ6

Need a **VPXplus** to **RJ45**, **SATA** or **USB**?  
Please contact **Meritec** with any and all questions.

# The 3 Dimensions of VPX<sup>PLUS</sup>

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# The 3 Dimensions of VPX<sup>PLUS</sup>

## 1 Design

- Expedites time to market  
Customer request for changes can be implemented within minutes
- These changes do not require development of a new backplane
- Pull a fabric from slot to slot in seconds
- Your system combined with VPX plus® is the most agile system available

## 2 Test

- With the backplane diagnostic tool (below) you can: Test cross talk between rows, measure signal integrity from slot to slot and allows easy access to Tx quality
- 4 SMAs per 1 Wafer  
E.g.) 8 SMAs-2 Wafers, 12 SMAs-3 Wafers, 16 SMAs-4 Wafers



## 3 Deploy

- Deploy the development in hand
- Make rapid changes in the field
- Add/subtract system options
- Add additional I/O
- High speed connection from chassis to chassis
- ATR – I/O out to chassis from daughter card side

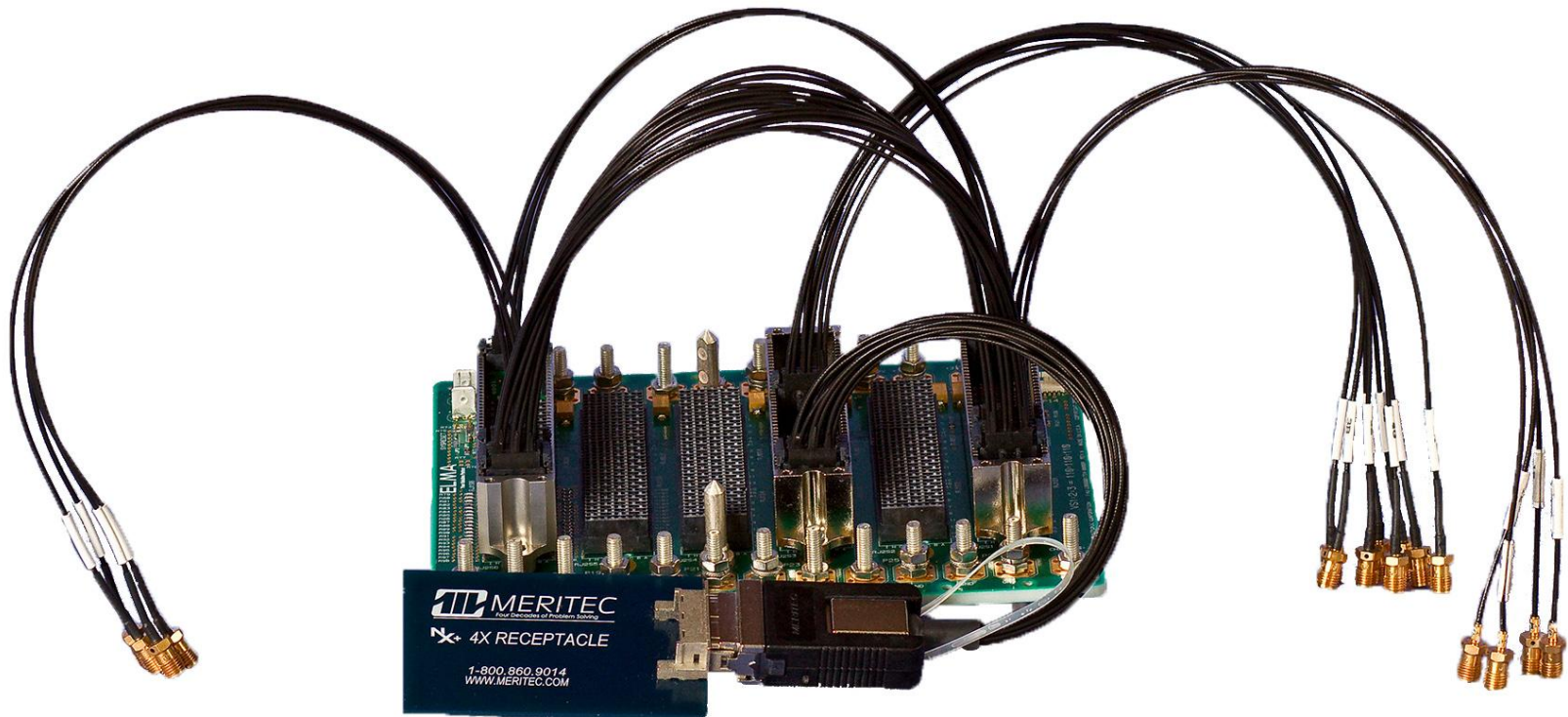
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# The 3 Dimensions of **VPX**<sup>PLUS</sup>

## Adding **Functionality & Flexibility** to Your System



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# The 3 Dimensions of **VPX**<sup>PLUS</sup>



## Backplane Diagnostic Tool:

(Odd/Even Wafer Ultra-Thin/Fat Pipe to SMAs)

- Check crosstalk between rows
- Check Skew and Tx integrity
- Validate channel compliance between slots
- Off-the-Shelf Lengths – 12"
- Insertion Loss: <2.5dB up to 5GHz
- Return Loss: <10dB up to 5GHz
- Connector Impedance: 100 +/- 10% at 100ps rise time (20 - 80%)
- Within Pair Skew: <3ps ft
- Time Domain Crosstalk: <4% at 40ps rise time (-20 to +80%) from multiple aggressors

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# Off-the-Shelf

## In Stock | Ready to Ship | Product Numbers

### Odd Wafer | Ultra-Thin Pipe

98141ODW336-006 (6")  
98141ODW336-012 (12")  
98141ODW336-018 (18")  
98141ODW336-024 (24")

### Even Wafer | Ultra-Thin Pipe

98141EVW336-006 (6")  
98141EVW336-012 (12")  
98141EVW336-018 (18")  
98141EVW336-024 (24")

### Odd - Even Wafer | Ultra-Thin Pipe

98141OEW336-006 (6")  
98141OEW336-012 (12")  
98141OEW336-018 (18")  
98141OEW336-024 (24")

### Odd/Even Wafer | Ultra-Thin/Fat Pipe | SMA | 12"

98141OSM336-012 [4] SMA  
98141ESM336-012 [4] SMA  
98141OFS336-012 [16] SMA  
98141EFS336-012 [16] SMA

\*commonly used as Backplane Diagnostics Tool

### Odd Wafer | Thin Pipe

98141OTP336-006 (6")  
98141OTP336-012 (12")  
98141OTP336-018 (18")  
98141OTP336-024 (24")

### Odd Wafer | Fat Pipe

98141OFP336-006 (6")  
98141OFP336-012 (12")  
98141OFP336-018 (18")  
98141OFP336-024 (24")

### Odd Wafer - RJ45 | Thin Pipe

98141OTR342-012 (12")  
98141OTR342-018 (18")  
98141OTR342-024 (24")

### Even Wafer - RJ45 | Thin Pipe

98141ETR342-012 (12")  
98141ETR342-018 (18")  
98141ETR342-024 (24")

### Odd/Even Wafer - CX4 Latch | Fat Pipe

98141OFX336-036 (36")  
98141EFX336-036 (36")

### Odd Wafer Hook-Up

98141OHU100-024 (24")  
98141OHU100-048 (48")

### Even Wafer Hook-Up

98141EHU100-024 (24")  
98141EHU100-048 (48")

### Short Housing Kits

981423UF (Front)  
981423UR (Rear)

### Long Housing Kits

981426UF (Front)  
981426UR (Rear)

### Deployment Rail Kits

981423DR (Short)  
981426DR (Long)

### Guide Post Kit

981424GP

### Positioning Plug Kit

981438PP

### Housing Stiffener Kit

98146US

For more information on The VPXplus Product Line email [VPX@meritec.com](mailto:VPX@meritec.com)

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# Contact Information

## Custom Cable Assemblies

Lynn Waller

Business Unit Manager

lwaller@meritec.com  
440.354.3148 Ext.567  
1.800.863.9014 Ext.567

Elaine Frantz

Inside Sales Coordinator

efrantz@meritec.com  
440.354.3148 Ext.332  
1.800.863.9014 Ext.332

VPX@meritec.com

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