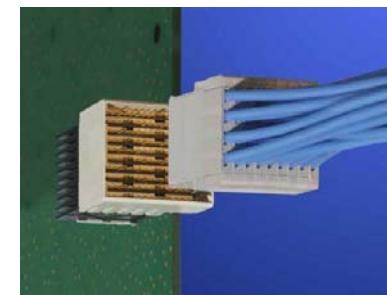
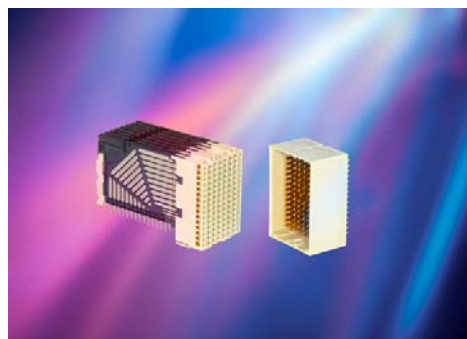


**AirMax VS®  
Back Panel Receptacle**



**AirMax VS®  
IO cabling**

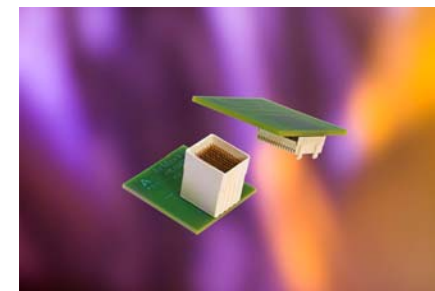


**AirMax VS®  
Back Panel Header**

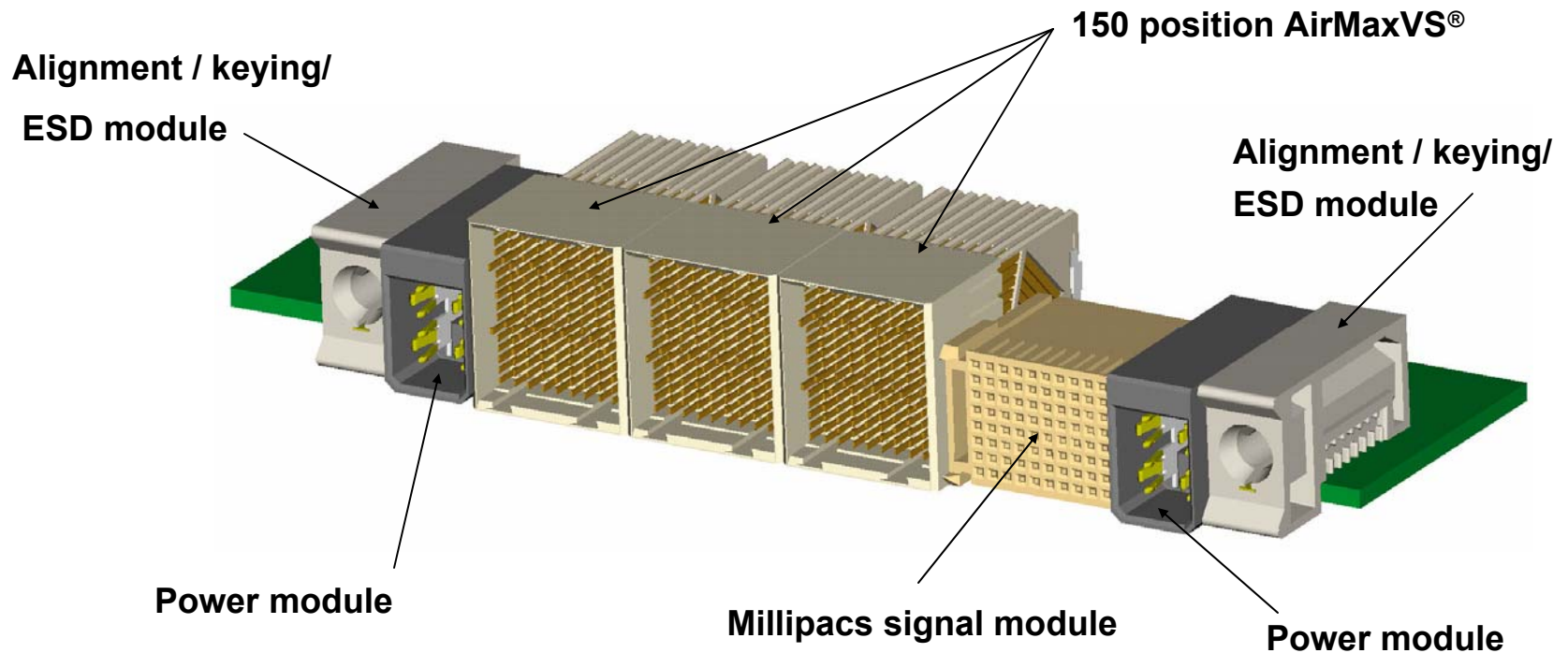


**AirMax VS®  
Coplanar**

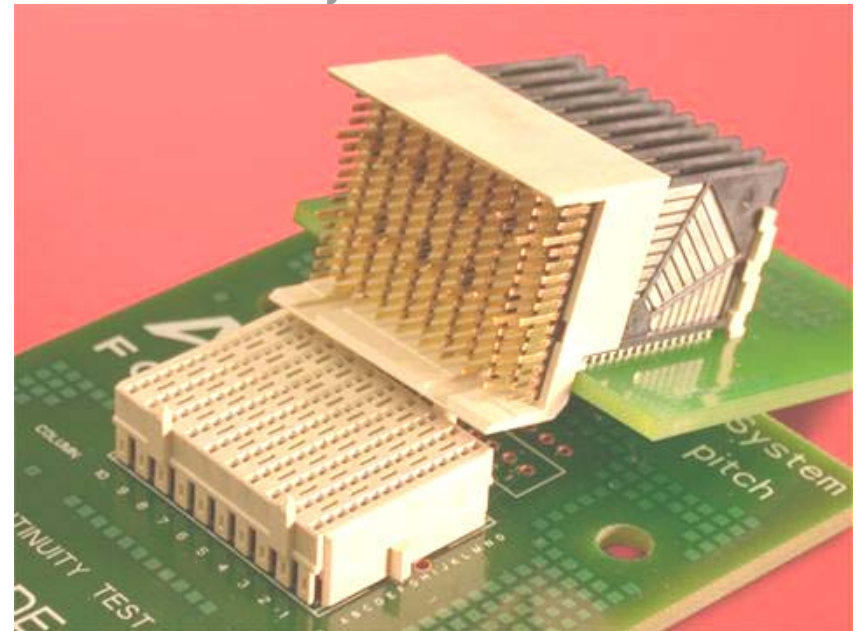
**AirMax VS®  
Mezzanine**



- AirMax VS<sup>®</sup> is a versatile connector system designed for cost effective high density interconnects.



- *AirMax VS<sup>®</sup> is the first high speed connector system that contains NO shields between columns:*
  - *Air used as the dielectric:*
    - *Excellent electrical performance;*
  - *Reduced cost for components and assembly*
  - *Reduced insertion and extraction forces*
  - *Reduced weight*



## ■ AirMax VS<sup>®</sup> provides:

### ■ Flexibility:

- Column spacing within a module and pin assignment in a column;

### ■ High density:

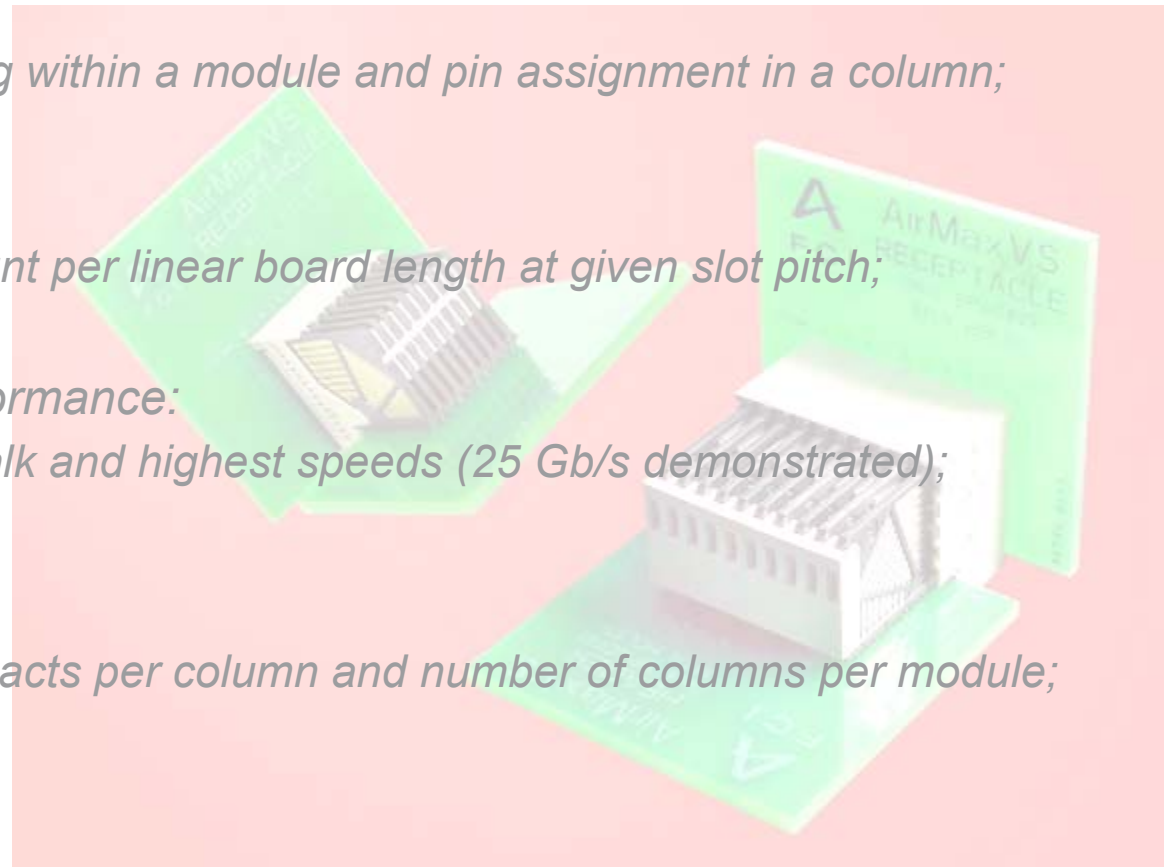
- Highest pin count per linear board length at given slot pitch;

### ■ Headroom in performance:

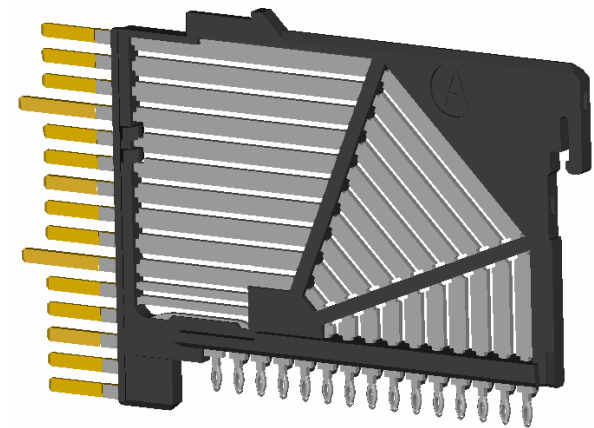
- Lowest cross talk and highest speeds (25 Gb/s demonstrated);

### ■ Scalability:

- Number of contacts per column and number of columns per module;

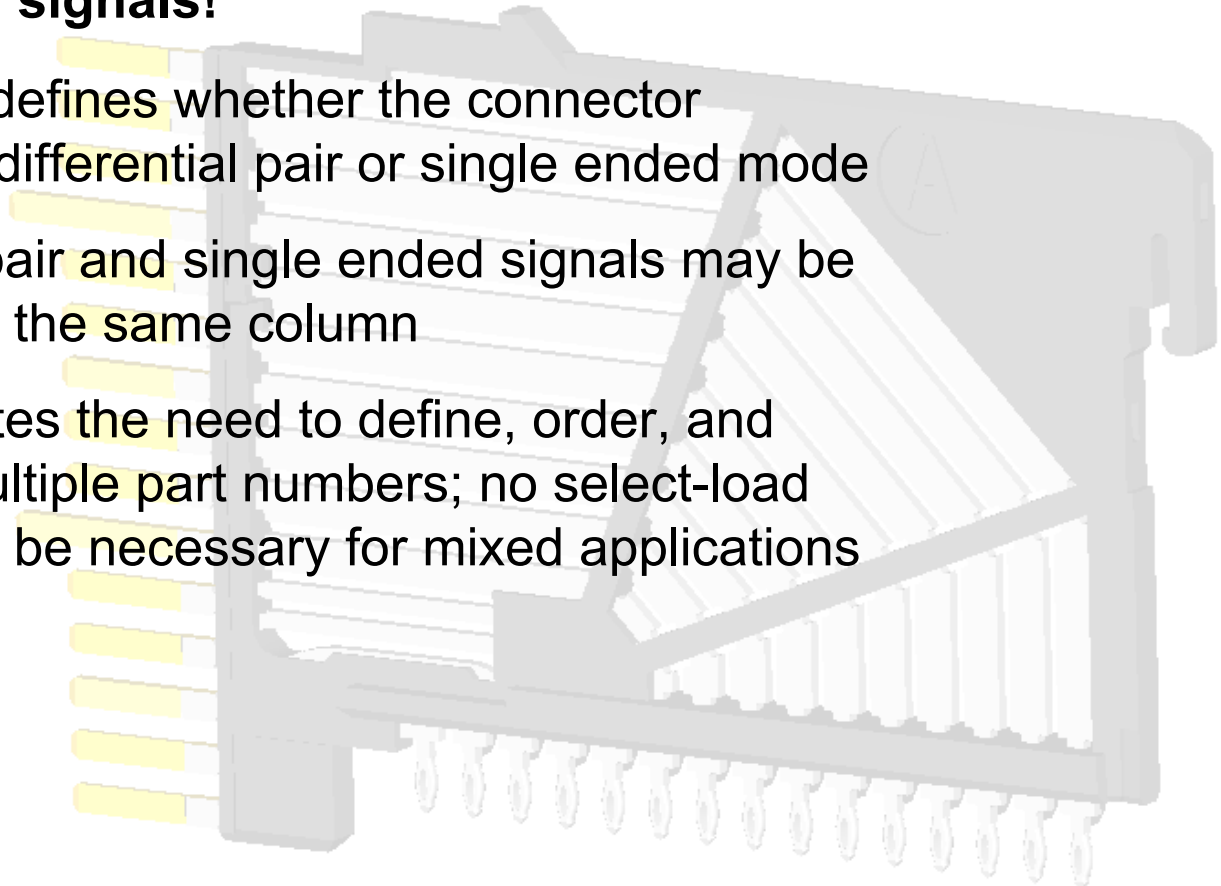


- **Each IMLA performs electrically as a stand-alone as unit!**
- **Electrical performance does not rely on physical location relative to an adjacent IMLA or to an adjacent shield**
  - No impedance mismatch on end columns
- **This allows for alternative centerline spacing between columns:**
  - 2mm, 3mm, and 4mm pitches are currently tooled
  - Larger column pitch requires fewer routing layers and improves routing density
  - Pitch is defined by the molded housing components; IMLA's remain the same with different pitch options



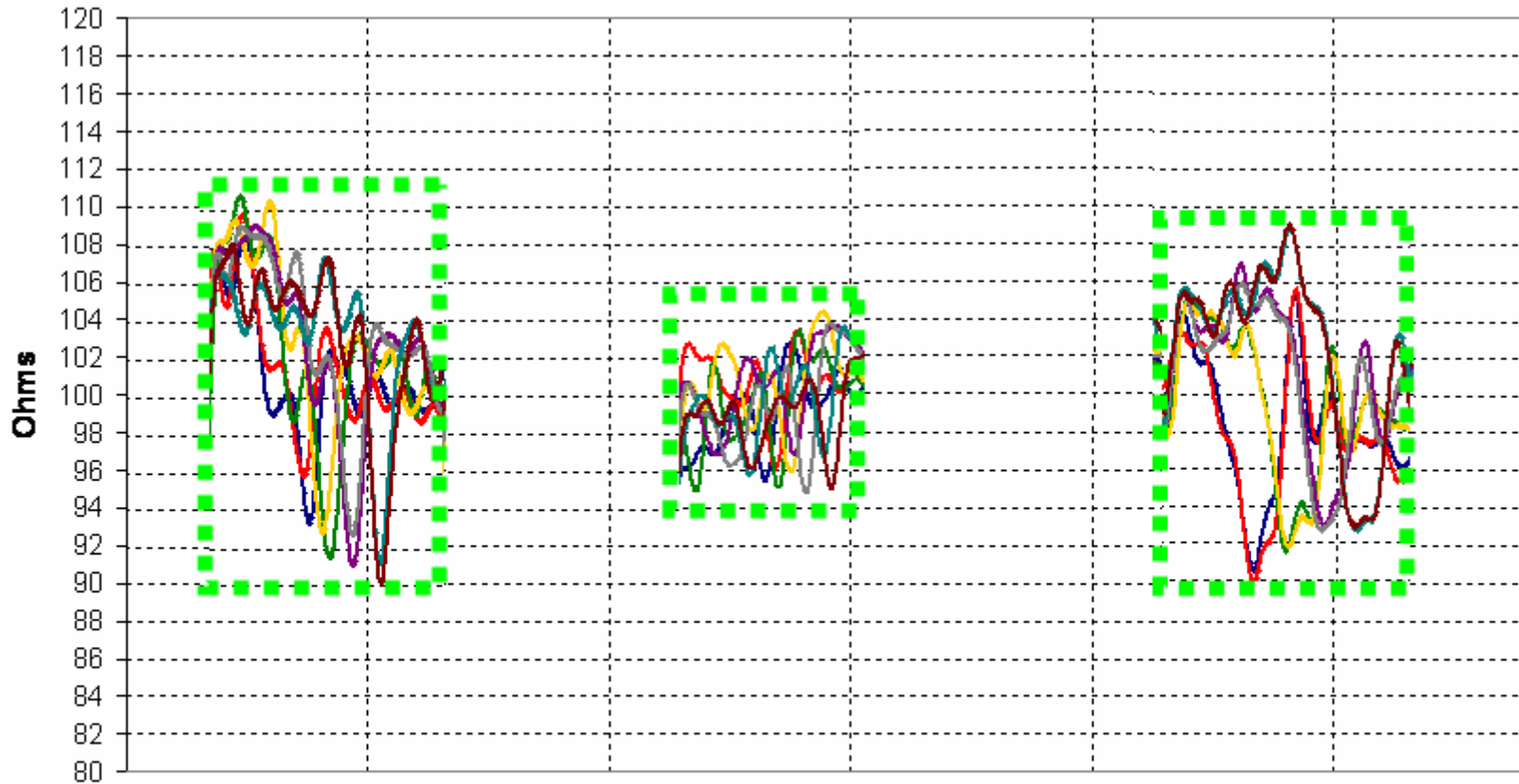
**IMLA: Insert Molded Leadframe Assembly**

- **The same IMLA design will transmit differential pair or single ended signals!**
  - PCB layout defines whether the connector transmits in differential pair or single ended mode
  - Differential pair and single ended signals may be mixed within the same column
  - This eliminates the need to define, order, and inventory multiple part numbers; no select-load products will be necessary for mixed applications





- 150 position (15 row / 2mm pitch) connector:
  - 25 mm (1 inch) plug in unit pitch, 5 differential pairs per column
  - 25 differential pairs per linear cm (63 differential pairs per linear inch)
  - 37 single ended pins per linear cm (95 single ended pins per linear inch)



**Connector Z**  
90 – 111 ohms

**AirMax VS®**  
95 – 105 ohms

**Connector X**  
90 – 109 ohms

## Risetime = 50ps (10-90%)

	NEXT	FEXT
<b>AirMax VS</b>	<b>3.1%</b>	<b>5.2%</b>
<b>X</b>	<b>6.9%</b>	<b>10.2%</b>
<b>Z</b>	<b>7.1%</b>	<b>6.1%</b>

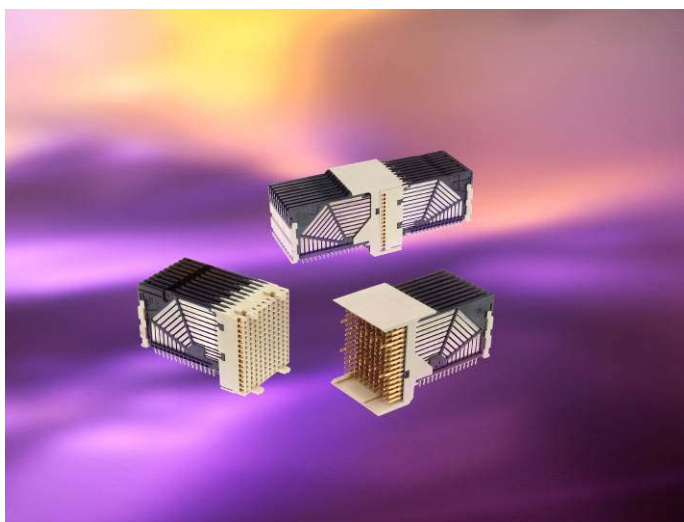
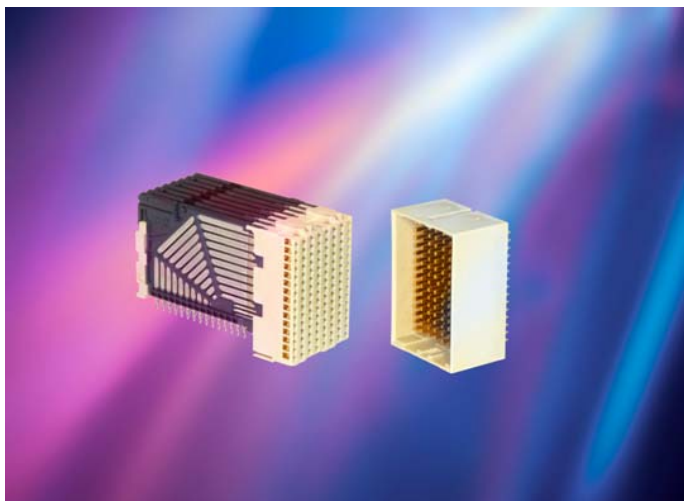
## Risetime = 100ps (10-90%)

	NEXT	FEXT
<b>AirMax VS</b>	<b>1.9%</b>	<b>1.8%</b>
<b>X</b>	<b>3.4%</b>	<b>4.0%</b>
<b>Z</b>	<b>5.1%</b>	<b>3.0%</b>

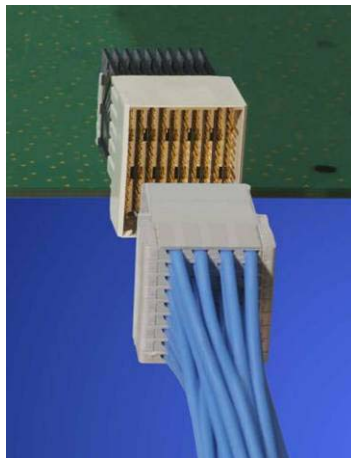
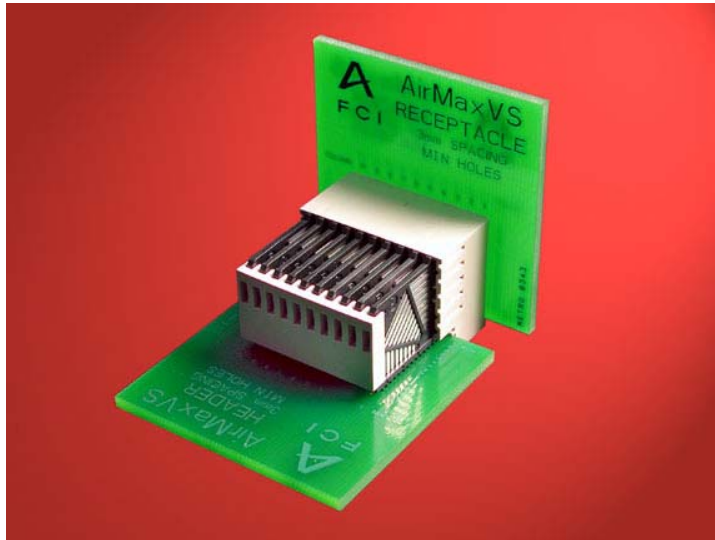
**»Note: X-talk is one of the SI parameters that – unlike insertion loss – can not be compensated for in the silicon, so it is an important factor!**



- AirMax VS® is scalable to:
  - The number of contacts per column;
  - The number of columns per module;
  - At multiple column to column pitches.
- This scalability can be offered without a penalty on electrical performance because air is used as a dielectric.



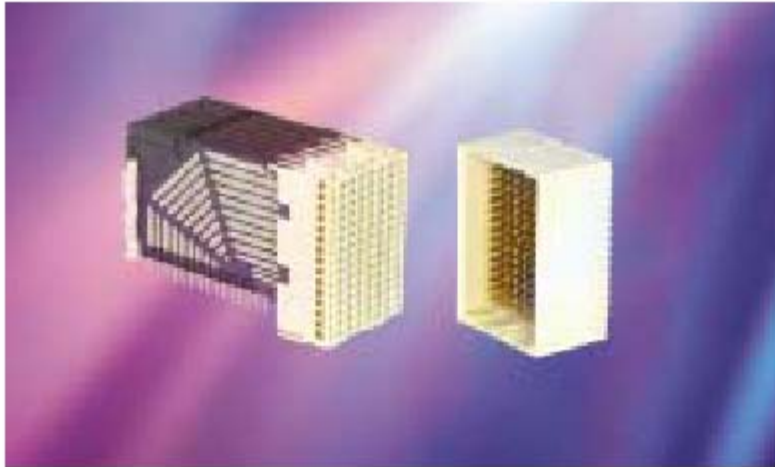
- Designed for maximum pin density along the card edge:
  - 25 differential pairs per linear cm board length;
  - 25 mm card pitch;
- Available in various column counts:
  - 8 & 10 columns (2mm);
  - 10 columns (3mm);
  - R/A header & Vertical receptacle;
  - Vertical header & R/A receptacle;
- BGA attach in development;
- Main applications of use:
  - Servers;
  - IP Switching
- Other column counts and – spacings available upon request.



- Designed for applications requiring maximum density at 20 mm plug in unit pitch;
  - 20 differential pairs per linear cm board length;
  - Maintains modularity of 2 lanes per column (2 Tx and 2 Rx);
- Available in 2 mm and 3 mm column to column spacing:
  - 10 columns per module;
  - R/A header & vertical receptacle;
- Vertical header & R/A receptacle in development:
  - 10 columns per module @ 2 mm column to column pitch;
- IO for rear plug up in development;
- Main applications of use:
  - Telecommunications;
- Other column counts and – spacings available upon request.



- Designed for applications requiring highest density at very low clearance above PCB surface:
  - Allows for good airflow
  - < 15 mm above PCB surface;
  - < 20 mm card pitch;
  - 15 differential pairs per linear cm board length;
- Available in 6, 8 and 10 columns:
  - 2 mm column to column pitch;
  - R/A header & Vertical receptacle;
- Vertical header & R/A receptacle in development:
  - 2 mm column pitch;
  - 6 columns;
- Main applications of use:
  - Servers & storage
- Other column counts and – spacings available upon request.



## > Features

- Dual beam, double sided contact system
- Robust receptacle design
- High pin density per module
- Designed to fit HM (hard metric) building practice
- No pre-assigned ground pins
- Protective cover also serves as press in block
- Excellent electrical performance
- Low weight and low mating forces

## > Benefits

- Minimized risk of damaging pins
- Allows for improved pcb routing density, so less layers required in the pcb
- Allows for multiple IMLA-counts and – spacings for optimized board real estate consumption and trace routing
- Allows for custom pin assignment (signal, power, differential or single ended)
- Head room in electrical performance (25 Gb/s demonstrated)
- No redesign of basic platform required: saves time to market

## BACKPANEL RECEPTACLE

### Key features

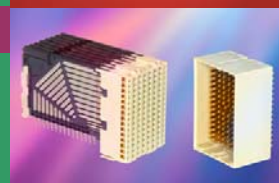
- Right angled header & vertical receptacle
- No pins on back panel
- Same vertical receptacle used in mezzanine
- Same right angle header used in coplanar



## BACKPANEL HEADER

### Key features

- Right angled receptacle & vertical header
- Pins on back panel
- Robust receptacle design
- Protective cap on header also serves as press in block



## CO PLANAR

### Key features

- Same right angled header & receptacle used in back panel application
- Robust receptacle design



## MEZZANINE

### Key features

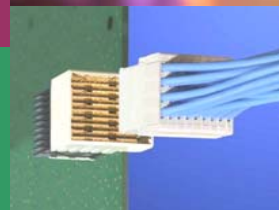
- Vertical header & vertical receptacle
- Header supports various stack heights (12.5-30 mm)
- Protective cap on header also serves as press in block
- Same receptacle can be used in back panel application



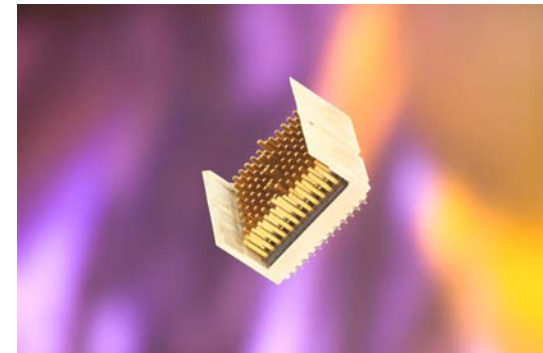
## CABLE TO BOARD

### Key features

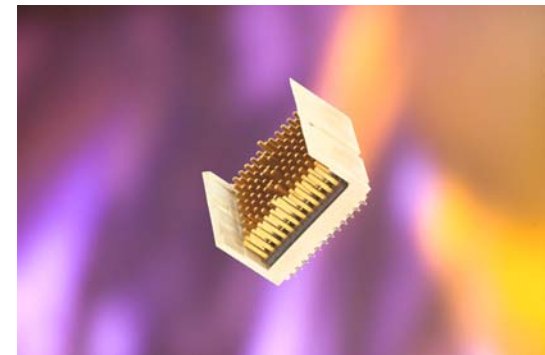
- Vertical header on back plane
- Passive latch terminals
- Custom cable assemblies
- Right angled header for front IO



- With the combination of vertical receptacles and vertical headers a mezzanine capability is created:
  - 12.5 mm stack height;
  - 3 pair, 4 pair & 5 pair.
  
- A dedicated AirMax VS® mezzanine header will add specific stack heights to this offering:
  - 14 mm minimum
  - 30 mm maximum
  - Increments of 2 mm
  - Custom specific applications

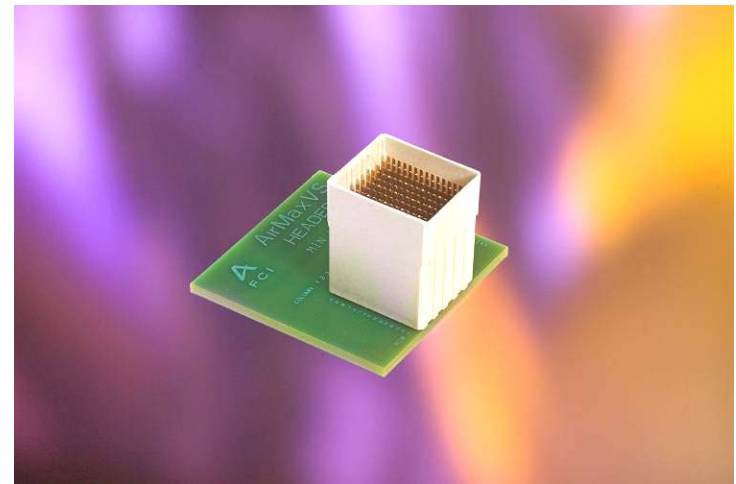


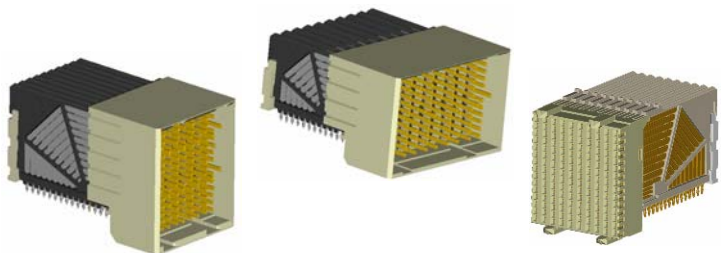
- 3 pair 6 IMLA 2 mm;
  - Header 10056101-105; receptacle: 10043546-101
  
- 4 pair 10 IMLA 2 mm;
  - Header 10056100-101; receptacle:
  
- 5 pair 10 IMLA 2 mm;
  - Header: 10046098-101; receptacle: 10016537-101



## ■ Features & Benefits:

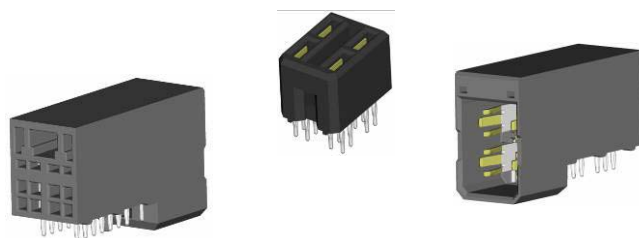
- Mates with standard vertical receptacle;
- Is provided with 4 wall housings to provide excellent mechanical stability and pin protection;
- Comes with protective cover that also serves as press in block (flat rock);
- Capable of supporting stack heights from 14 mm up to 30 mm (with increments of 2 mm);
- Maximizes the use of air as a di-electric and so provides same flexibility as other AirMax VS® products;
- Excellent electrical performance;





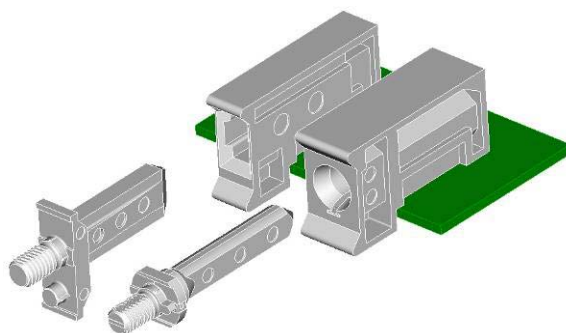
## Signal modules

- 3, 4, and 5 pair configurations are tooled
- 2mm or 3mm pitch between columns
- 6, 8, or 10 column versions



## Power modules (HM):

- Multiple mating lengths available
- 1x2 and 2x2 headers
- 80 amps total current carrying capacity for either configuration

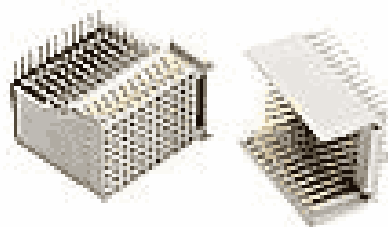


## Guide/ Key/ ESD modules:

- Rugged die-cast body
- Corrects up to +/- 3.5mm of misalignment
- 8 keying options available
- ESD dissipation contact optional
- 7.2mm and 10.8mm module widths

## Standard Millipacs:

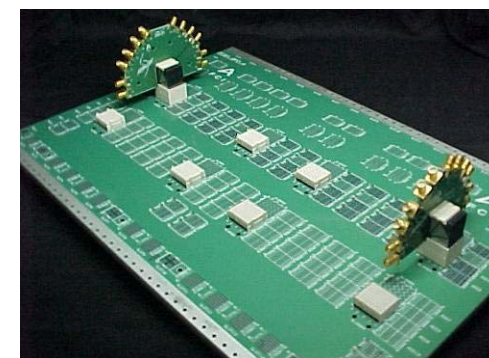
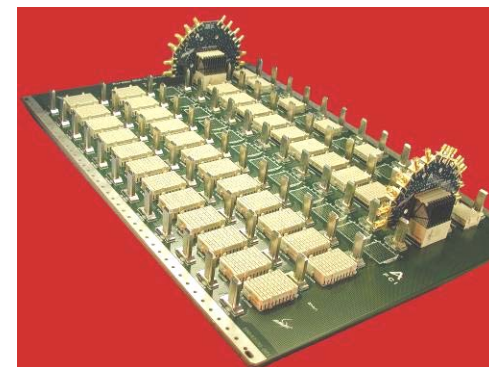
- Fully IEC 61076-4-101 compliant;
- 2mm Hard Metric
- speeds up to 622 Mb/s

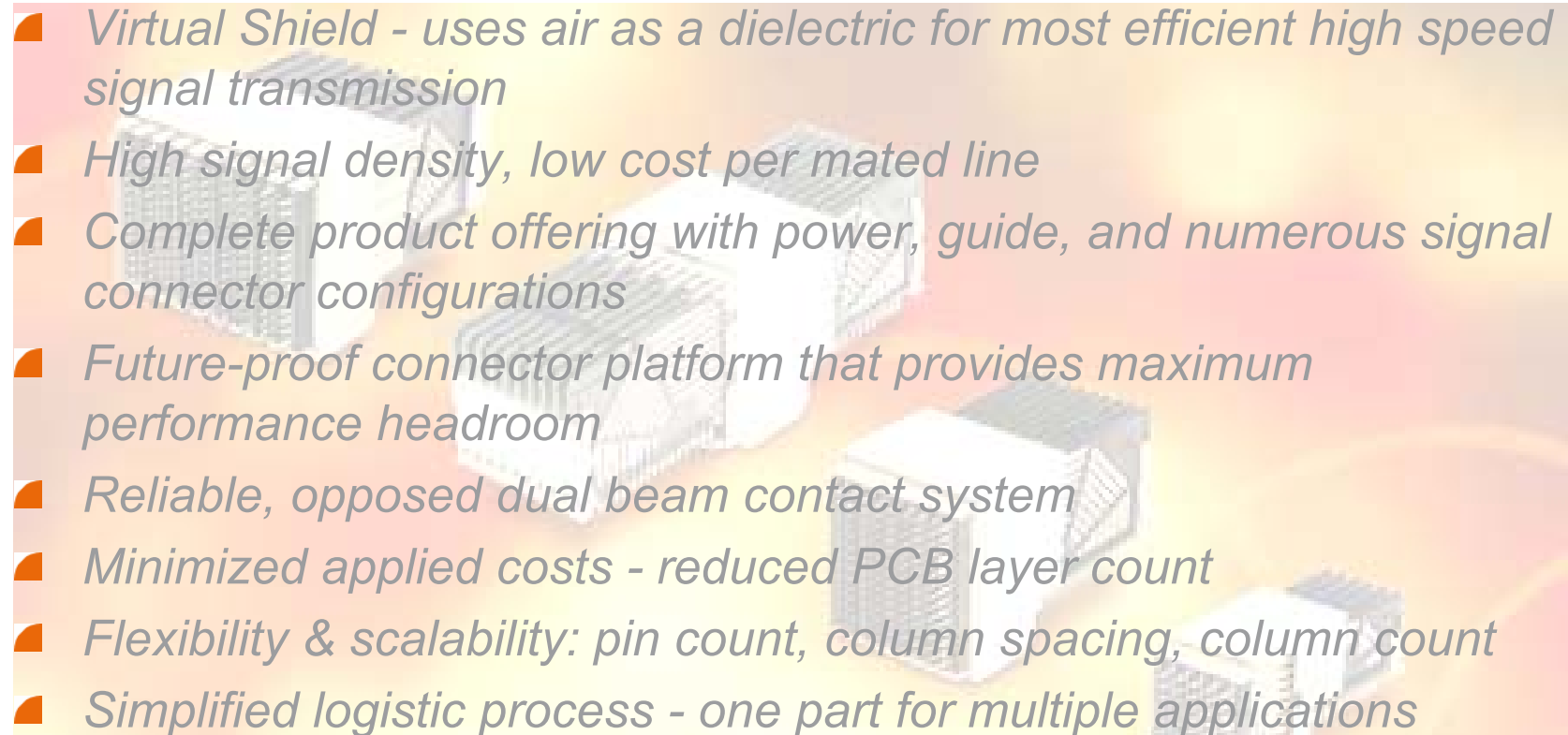


- *Custom ATCA back plane design, Sanmina-SCI*
- *10 Gb/s ATCA back plane design, Simclare (Interconnect Technologies)*
- *40 Gb/s backplane (PAM04) with Accelerant Networks*
- *25 Gb/s duobinary with Lucent / Vitesse*
- *10 Gb/s with Maxim*
- *10 Gb/s demonstrator with Mitsubishi Electric*
- *10 Gb/s with Endicott Interconnect*
- *10 Gb/s with Thin Film Technology Corp*

*Additional information available upon request*

*Also see [www.fciconnect.com](http://www.fciconnect.com).*



- 
- *Virtual Shield - uses air as a dielectric for most efficient high speed signal transmission*
  - *High signal density, low cost per mated line*
  - *Complete product offering with power, guide, and numerous signal connector configurations*
  - *Future-proof connector platform that provides maximum performance headroom*
  - *Reliable, opposed dual beam contact system*
  - *Minimized applied costs - reduced PCB layer count*
  - *Flexibility & scalability: pin count, column spacing, column count*
  - *Simplified logistic process - one part for multiple applications*