Bishop and Associates Inc. announces the release of a new seven-chapter, 215-page research report analyzing High-Speed Board-to-Board Connectors.

This report analyzes electronic packaging trends and evolutionary changes that influence high-speed board-to-board connector designs. It explains what connector families best fit architectures including medical, industrial, mil-aero, server racks, switches, large routers, standard card cages, and 1U boxes. Mezzanine connector standards are also explained allowing readers to find the connector and standard that best fits their application.

Connector product managers, design engineers, procurement teams, and financial analysts will all find valuable information in this report enabling them to develop winning strategic plans for their products and companies. OEM management, and design and procurement can use the information in this report to make knowledgeable decisions about the architectural and interconnect strategies most likely to give them a competitive advantage in their markets. Tables in the report show what stack heights and pin counts are available for various configurations and signal integrity requirements.

This report focuses on high-speed mezzanine, edge-cards, memory, and storage connectors designed for data rates from 10 to 56Gbps. Offerings from all the major high-speed board-to-board connector suppliers are described, compared, and contrasted, allowing readers to quickly identify the right connector families and suppliers most likely to meet their specific needs for mechanical and electrical performance.

This report excludes some categories not considered important enough, or different enough, to warrant their own deep dive. Not included in this report are backplane connectors, power, cable solutions, flex-circuit connectors, and fiber optic systems. Microminiature connectors, such as those used in laptops and phones, are also excluded.

Fundamental strategies, range of offerings, and direction are explained for each supplier. It becomes easy to see how connector manufacturers collaborate, compete, and differentiate themselves from competitors.

As data rates reach beyond 56Gbps, connector designs need to be finely tuned for tight impedance control and reduced crosstalk. This report illuminates how the highest speed connectors are able to achieve these data rates while still maintaining high density and robust construction.

Market size and forecast data are provided by connector types including:

- Open pin field mezzanines
- Stripline dual row connectors
- Drive connectors
- Backplane style mezzanine connectors
- High-speed edge card connectors
- Memory sockets

Financial firms seeking investment opportunities in the connector space will benefit from the insight provided in this report regarding market attractiveness, competitive positioning, and important market trends that will drive future growth.

This report is also a great tutorial about the range of connector options available from major manufacturers, the strengths and limitations of various systems and technology, and second sourcing strategy. This information combined with useful tables showing what stack heights, configurations, pin counts, and data rates are available...
High-Speed Board-to-Board Connectors

from the various families, provides guidance for OEM design and procurement people as well as distributor sales people and product managers who need to guide their customers to the best interconnect for each application.

A family of printed circuit board connectors (PCB) that have evolved significantly over the last decade, high-speed board-to-board connectors, have entered into design areas few would have thought possible just a few years ago. Couple this with the number of pin and height variations required to satisfy the needs of the various system developers and the design parameters can become daunting! This report analyses those parameters and provides an overview of both existing and newly developed products, allowing the reader to intelligently categorize and quantify the market for high-speed board-to-board connectors.

Connector sales by region and high-speed board-to-board connector type, DIMM module, and selective board level storage connectors are provided for the years 2014, 2015, 2016F and 2021F with a 5-year CAGR.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>North America</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MicroTCA</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
</tr>
<tr>
<td>AMC Mezzanine</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
</tr>
<tr>
<td>.025&quot;/.050&quot; Pitch High Speed</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
</tr>
<tr>
<td>Small Form Factor (.05)/2.0mm Pitch</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
</tr>
<tr>
<td>High-Speed Stackers (Backplane Types)</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
</tr>
<tr>
<td>High-Speed Stackers (Stripline Types)</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
</tr>
<tr>
<td>High-Speed Stackers (Open Pin Field Arrays)</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
</tr>
<tr>
<td>High-Speed Stackers (Interposer Types)</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
</tr>
<tr>
<td>High-Speed Stackers (Modular Designs)</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
</tr>
<tr>
<td>1 Piece High-Speed Edge &gt;25 Gbps</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
</tr>
<tr>
<td>2 Piece High-Speed Edge</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
</tr>
<tr>
<td>High-Speed Coplanar Connectors</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
</tr>
<tr>
<td>Compression Array Connectors</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
</tr>
<tr>
<td>IEEE 1386 (1mm)</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
</tr>
<tr>
<td>1.5mm (MicroGaCN Types)</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
<td>$XX</td>
<td>$XX</td>
<td>Y.Y%</td>
</tr>
</tbody>
</table>

$ Millions

For more detailed information, refer to the report by Bishop & Associates Inc.
The following table of contents shows the detail provided in this new report.

### Table of Contents

#### Chapter 1 – Report Overview and Definition of Terms
- Objective
- Scope of the Study

#### Chapter 2 – Executive Summary
- Why Have Connectors at All?
- Rack Architecture
- 2U, 4U Packaging
- 9U Sub-Racks
- VITA – VME International Trade Association
- PICMG – PCI Industrial Computer Manufacturers Group
- Open Compute Open Rack Architecture
- OpenCloud Connector Specifications
- Storage Box Architectures
- Mating Multiple Connectors at Once

#### Chapter 3 – Discussion of Connector Types
- Two Row Open Pin Field Connectors
- Vertical Plug and Receptacle Using Blanked Contacts
- Array Connectors
- Open Pin Field Array Connectors
- Pin in Hole Reflow (PIHR) Connectors
- Inspection
- Press Fit Connectors
- Wafer Style Connectors
- Screw Machine Connectors
- Right Angle to Right Angle Connectors to Connect Coplanar Boards
- Vertical Edge Card Connectors
- Riser Cards
- Pluggable Modules
- Memory Connectors
- Modules
- SODIMM
- MiniDIMM
- Angled DIMM
- JEDEC
- Storage Connectors
- SAS (Serial Attached SCSI)
- SATA (Serial ATA)
- SCA-2
- Micro SATA
- Slimline SATA

#### Chapter 4 – Industry Standards
- IEC – International Electrotechnical Commission
- ANSI – American National Standards Institute
- IEEE – Institute for Electrical and Electronic Engineers
- PICMG
- AdvancedMC™ (AMC)
- MicroTCA®
- MicroTCA MCH Plug Solutions
- COM Express® Modules
- VITA – VME International Trade Association
- VITA 42 XMC Connector
- VITA 57 FMC Connector
- VITA 61 Rugged XMC Connector
- PCI-SIG
- PCI Express®
- PCI Express Mini Card
- M.2
- MXM 3.0
- SFF-SIG
- PISMO™ Platform Independent Storage

#### Chapter 4 – Industry Standards (cont.)
- PCI-SIG
- PCI Express®
- PCI Express Mini Card
- M.2
- MXM 3.0
- SFF-SIG
- PISMO™ Platform Independent Storage

#### Chapter 5 – High-Speed Board-to-Board Connector Supplier Profiles
- TE Connectivity
- TE Mictor
- TE Mictor SB
- TE Mezalock
- TE STRADA Mesa
- TE HM 2D Mezzanine

##### Samtec
- Samec-Q-Strip®
- Samtec Q2™ Shielded
- Samtec Edge Rate™ Connectors
- Samtec High Speed Edge Card Connectors (HSEC)
- Samtec Razor Beam™ System
- Samtec Q Rate™
- Samtec SamArray®
- Samtec SEARAY Connector
- Samtec SEARAY-LP
- Samtec Z-Ray® Interposers
- Samtec SkyRay™

##### Amphenol-TCS
- Amphenol-TCS Strategy
- Amphenol-TCS NeXLev®
- Amphenol-TCS InfinX™
- Amphenol-TCS XCede®
- Amphenol-TCS Paladin®
- Amphenol High-Speed Edge-27
- Amphenol Lynx
- Amphenol-TCS Apter™
- Amphenol-TCS VHDM® Stacker

##### Molex
- Molex/Samtec SEARAY
- Molex/Samtec HD MEZZ™
- Molex NeoScale® High-Speed Mezzanine
- Molex NeoPress® High-Speed Mezzanine
- Molex HS Dock+™ System
- Molex SpeedStack™
- Molex Edgel®
- Molex Edgel® 25
- Molex CoEdge
- Molex Impact Stacker

##### Hirose
- Hirose Strategy
- Hirose FX10
- Hirose FX11
- Hirose FX12
- Hirose IT3
- Hirose IT5/Samtec SkyRay
- Hirose XG1
- Hirose FX18 RA/Coplanar
High-Speed Board-to-Board Connectors

Chapter 5 – High-Speed Board-to-Board Connector Supplier Profiles (cont.)

Amphenol FCI
- Amphenol FCI Meg-Array®
- Amphenol FCI Gig-Array®
- Amphenol FCI TwinMezz®
- Amphenol FCI ExaMezz®

JAE
- JAE WA6
- JAE TX24A/TX25A
- JAE WD2

JST
- JST JMD Connector
- JST JMC Connector
- JST Vertical SO DIMM 144

Advanced Interconnect
- Advanced Interconnect B2B® Mezzanine

HARTING
- HARTING con:card+®
- HARTING AMC Plug

Yamaichi
- Yamaichi AMC and MicroTCA Compression

ERNI MicroSpeed®
- Fujitsu Differential Connector

Chapter 6 – Observations and Conclusions

Observations and Conclusions

Chapter 7 – Statistical Analysis (cont.)

High-Speed Mezzanine Connectors by Connector Type and Region 2014 and 2015 with Percent Change

High-Speed Mezzanine Connectors by Connector Type and Region 2015 and 2016F with Percent Change

Storage Connectors by Product Type and Region 2015 and 2016F with Percent Change

DIMM Modules by Type and Region 2015 and 2016F with Percent Change

High-Speed Mezzanine Connectors by Connector Type and Region 2016F and 2021F with 5-Year CAGR

2016F High-Speed Mezzanine Connectors by Region

2021F High-Speed Mezzanine Connectors by Region

High-Speed Mezzanine Connectors by Type 5-Year CAGR 2016F to 2021F

Storage Connectors by Product Type and Region 2016F and 2021F with Percent Change

2016F Storage Connectors by Region

2021F Storage Connectors by Region

DIMM Modules by Type and Region

2016F DIMM Modules by Region

2021F DIMM Modules by Region

Appendix A – Terms and Definitions

Appendix B – Connector Speeds and Multiple Sourcing

Appendix C – Stack Heights Available by Connector Family

Appendix D – Connector Families Based on Bishop Category
To Order High-Speed Board-to-Board Connectors

Research Report P-890-16, High-Speed Board-to-Board Connectors is available for $3,950. If you would like additional information about this report, or would like to place an order, please complete the following information and fax or mail it to Bishop & Associates, Inc. To place your order on our website: http://store.bishopinc.com/. Additional print copies of this report are available for $395.

Fax No. 630-443-2704

<table>
<thead>
<tr>
<th>Name:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title:</td>
</tr>
<tr>
<td>Company:</td>
</tr>
<tr>
<td>Address:</td>
</tr>
<tr>
<td>City:</td>
</tr>
<tr>
<td>State:</td>
</tr>
<tr>
<td>Zip:</td>
</tr>
<tr>
<td>Phone:</td>
</tr>
<tr>
<td>Fax:</td>
</tr>
<tr>
<td>E-Mail Address:</td>
</tr>
<tr>
<td>Signature:</td>
</tr>
</tbody>
</table>

High-Speed Board-to-Board Connectors

- Print Copy @ $3,950
- Print Copy + 1 Additional Print Copy @ $4,345
- Print Copy + CD (Multi-User Corporate License) @ $5,135

- Invoice Me
- Check Enclosed
- Visa
- Master Card
- American Express

Additional $75.00 for International Airmail
Illinois Customers Add 8.0% Sales Tax

Credit Card No. [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Expiration Date [ ] [ ] Mo. [ ] [ ] Yr.

For Questions in Europe:
Mr. Arthur Visser
Bishop & Associates, Inc.
Phone: (32) 2.660.3696 Fax: (32) 2.675.8374
Email Arthur Visser.

Bishop & Associates, Inc.
Performance and Forecast of the World Connector Industry

1209 Fox Glen Drive
St. Charles, IL 60174
Phone: 630/443-2702 Fax: 630/443-2704
E-mail: bishop@bishopinc.com
Website: www.connectorindustry.com
Online Store: http://store.bishopinc.com/
What's New?

Bishop & Associates has recently completed several new research reports about the worldwide connector industry. A table of contents for each report can be found at [http://store.bishopinc.com](http://store.bishopinc.com).

- **Report P-890-16**  
  High-Speed Board-to-Board Connectors (August 2016) NEW

- **Report C-122-16**  
  2016 Connector Industry Yearbook (July 2016) NEW

- **Report M-720-16**  
  European Connector Market 2015, 2016-2021 (June 2016) NEW

- **Report P-799-16**  
  2016 World Cable Assembly Market (June 2016) NEW

- **Report M-1015-16**  
  World Electric Vehicle Connector Market (May 2016)

- **Report P-780-16**  
  KHz to THz: RF, Microwave, and Millimeter Wave Connectors (May 2016)

- **Report F-2016-01**  
  Connector Industry Forecast (April 2016)

- **Report M-700-16**  
  World Connector Industry Handbook (March 2016)

- **Report M-650-16**  
  The Internet of Things Impact on the Connector Industry, Volume 1, Consumer, Computer and Telecom (February 2016)

- **Report M-4100-16**  
  Civil Aviation Market for Connectors 2016 (January 2016)

- **Report M-850-15**  
  PC, Tablet & Smartphone Market Analysis and Forecast 2015-2020 (December 2015)

- **Report M-121-15**  
  Top 100 Connector Manufactures (October 2015)

- **Report M-1010-15**  
  World Automotive Connector Market (September 2015)

- **Report C-330-15**  
  European Survey of the Electronic Connector Industry (August 2015)

- **Report P-775-15**  
  Fiber Optic Connector Market 2015-2020 (August 2015)

**THE BISHOP REPORT - CONNECTOR INDUSTRY YEARBOOK**

An annual subscription to *THE BISHOP REPORT* (12 issues) is available for $1,150. As part of your Bishop Report subscription, you have admission to BishopReport.com, a website that provides quick access to prior issues of The Bishop Report, News Briefs, connector industry news, the connector industry forecast, and various industry statistics. An annual corporate subscription is available for $2,950, which includes an unlimited number of subscribers and one PDF version of the Yearbook.

The *CONNECTOR INDUSTRY YEARBOOK* is available for $1,500. However, Bishop & Associates offers a special combined price of $1,750 for *THE BISHOP REPORT* and the *CONNECTOR INDUSTRY YEARBOOK* (an annual savings of $900).

[Click here](http://store.bishopinc.com) to view an expanded report description, and a complete table of contents, for all Bishop & Associates’ research reports.