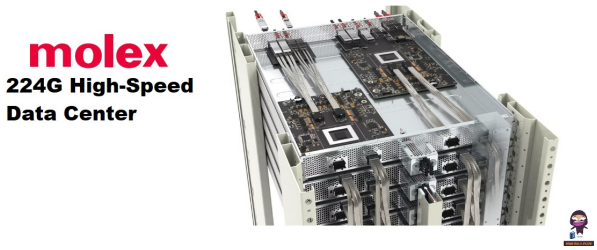

molex 224G High Speed Data Center Instructions

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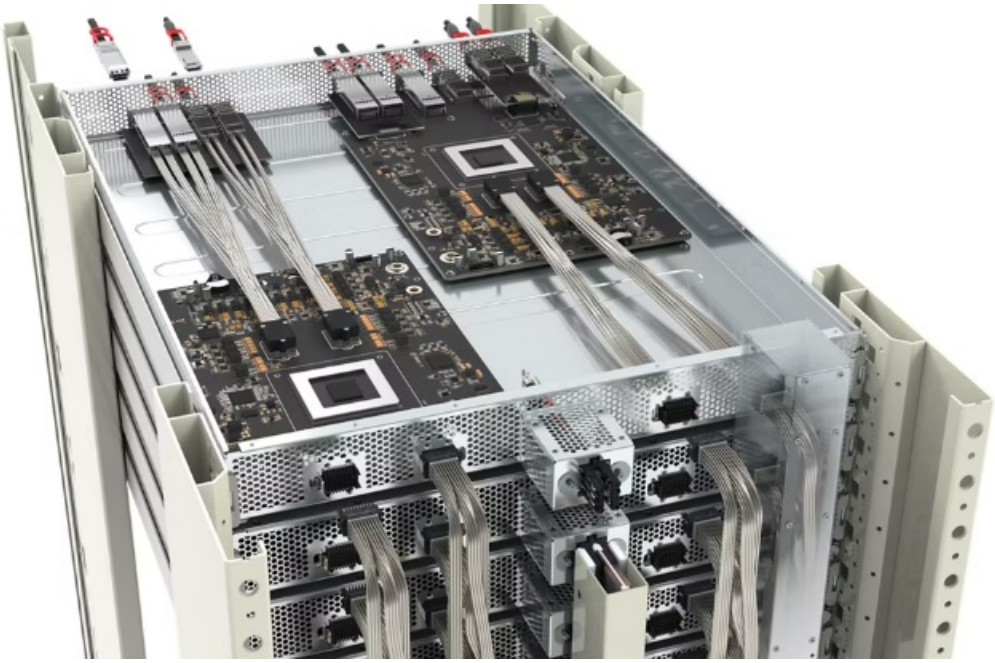


We stand on the edge of a precipice representing the greatest technological shift since the emergence of the smartphone. The societal value and influence of generative artificial intelligence (AI) cannot be overstated, with the potential to reinvent industries from automotive to quantum computing and genomics. Yet turning the ideas of today's technology leaders and emerging entrepreneurs into reality requires the data center of the future. Learn how Molex's industry-leading comprehensive portfolio of 224 Gbps-PAM4 products and custom architecture designs are enabling a new type of data center built to meet the increasing demands of AI, machine learning (ML), 1.6T networking and other high-speed applications. Our team of experienced design engineers is ready to collaborate with you. Unlock the potential of 224G by connecting directly with the engineering team pioneering this innovative technology.

Overview

- Generative AI requires a paradigm shift in the approach to data. Although the theme of "need more, faster" remains consistent, the supporting infrastructure of hyperscale data centers now face the limitations of physics. The exponential increase in ML and AI applications is driving a market growth trajectory that is expected to meet or exceed $2 trillion USD by 2030. Such astronomical expansion is only sustained by building next-generation data centers on 224 Gbps-PAM4 architecture.
- Molex's comprehensive portfolio of 224G products has been brought to market through interdisciplinary engineering and close collaboration with our customers. This co-development has united disciplines from connectivity and data to components and signal integrity to make 224G both possible and practical. Learn more about our 224 Gbps-PAM4 solutions and how Molex is uniquely positioned to help companies build to application demand at the earliest stages of architecture design.

Building the Next-Generation Data Center
The potential of AI cannot be fully realized with today's data center architecture. Synergistic solutions purpose-engineered for high-speed data center applications provide a path to revolutionizing data center design. Learn more about key design considerations and valuable connectivity solutions for the next evolution of data center architecture built for 224G.

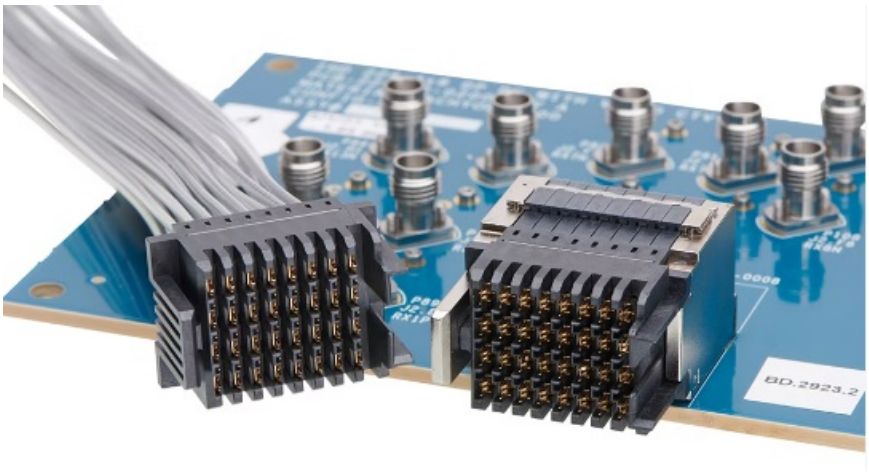
Featured Products

- **Why Copper Interconnects are Still Important in the Age of 224G**

To achieve groundbreaking 224Gbps speeds, high-speed copper interconnects play a critical role ensuring reliability, cost-efficiency, and scalability in the most demanding applications. Learn more in our webinar.

- **Mirror Mezz Enhanced 224G Board-to-Board Connector**
  This expansion to our current family of proven, genderless high-speed mezzanine board-to-board connectors offers the performance necessary for 224G while minimizing the space taken on the PCB. The genderless mating interface and mated height options can help expedite new connector module availability, increasing efficiency while often simplifying the bill of materials (BOM). The use of electrically tuned contacts and an industry-standard ball grid array (BGA) PCB attach improves signal integrity, eases connector assembly and provides significant protection from damage.

- **Inception 224G Genderless Backplane and Cable**
  The Inception family of genderless backplanes and cables enable superior application flexibility with variable pitch densities, optimal signal integrity and simplified integration. The simplified SMT launch reduces the need for complicated board drill and via processing at the PCB interface. The multiple wire gauge options can be partnered with custom lengths internal and external to the application for optimized channel performance.



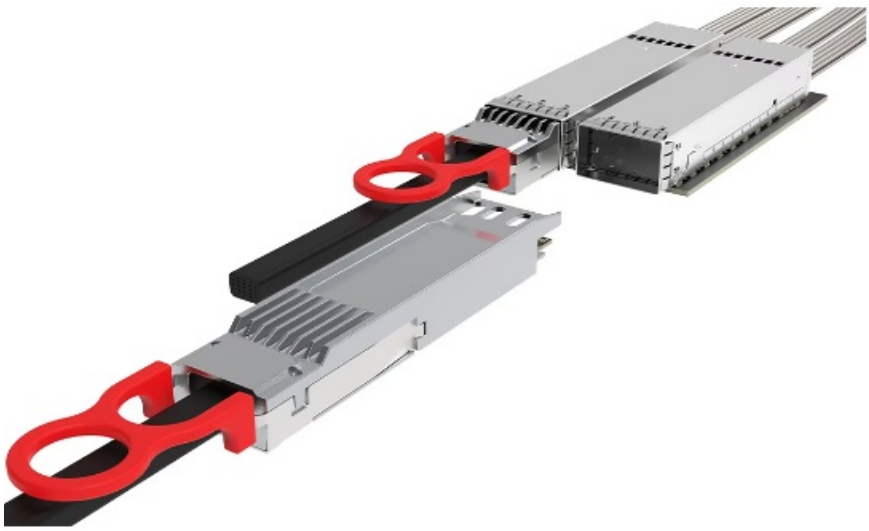
- **CX2 Dual-Speed 224G Near-ASIC Cabled Connector System**

  As data rates increase to 224G, maintaining signal integrity (SI) becomes increasingly crucial. Cabled solutions for the chip-to-chip channel can help meet this challenge by delivering better SI performance when compared with traditional PCB traces. The CX2 Dual-Speed 224G interconnect system uses low-loss twinax cable and an innovative shielding structure, together with a high-density interface that maximizes real estate on the board, to ensure optimal performance for near-ASIC connectivity.

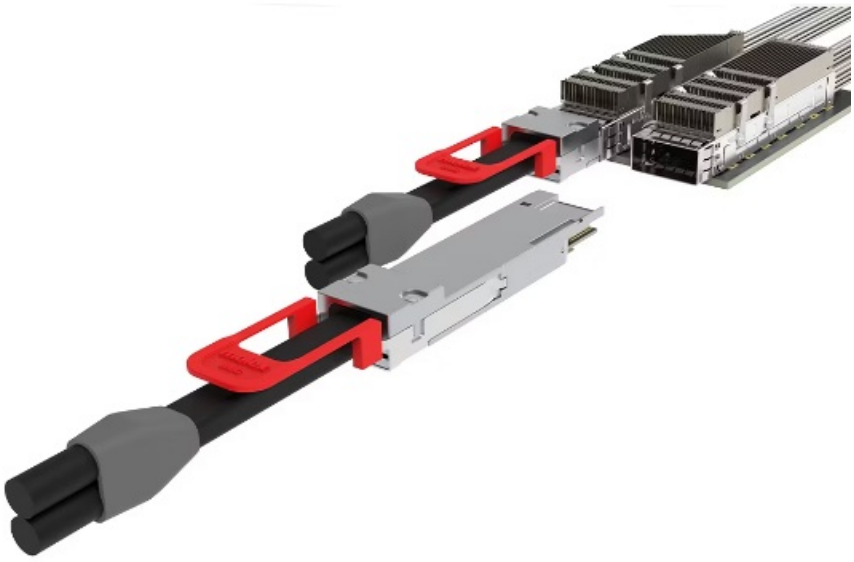
- **OSFP 1600 Solutions**

  This next-generation upgrade to our current OSFP product family includes SMT, BiPass and external cable solutions. Built for 224 Gbps-PAM4, these robust cables offer superior mechanical durability and excellent shielding to minimize crosstalk and deliver better signal integrity (SI) performance at a higher Nyquist frequency.

  - SMT Connector and Cage: Superior shielding from the mating interface to the SME tails and board ensures 224 Gbps channel operation and lower Bit Error Rate (BER).
  - BiPass: Standardized twinax that combines I/O with near-ASIC and Backplane solutions provide greater design flexibility.
  - Direct Attach (DAC) and Active Electrical Cables (AEC): Multiple cable configurations, optimized wire termination and CMIS support for system troubleshooting tailor solutions to application requirement.



- **QSFP 800 & QSFP-DD 1600 Solutions**
  Like our OSFP product family, our upgraded QSFP and QSFP-DD products are designed for 224 Gbps-PAM4 and offer excellent shielding to minimize crosstalk and improve performance at a higher Nyquist frequency. The family has been re-engineered to improve mechanical robustness including contact normal force, and encompasses SMT, BiPass and external cable solutions.
  - SMT Connector and Cage: Ensure 224 Gbps channel operation and lower Bit Error Rates (BER) with these durable solutions offering superior shielding.
  - BiPass: Reduce thermal load, lower rack costs and increase design flexibility with our BiPass solutions that utilize standardized twinax combining I/O with near-ASIC and Backplane solutions.
  - Direct Attach (DAC) and Active Electrical Cables (AEC): Build to your specific requirements with our passive, DAC solutions that are ideal for low cost, low latency applications and our retimed, AEC cables that offer superior serviceability at a lower cost compared to optics.



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Order No. 987652-6872

Documents / Resources

	molex 224G High Speed Data Center [pdf] Instructions 224G High Speed Data Center, 224G, High Speed Data Center, Speed Data Center, Data Center, Center

References

- User Manual