

MISSION-CRITICAL SOLUTIONS ➤ FOR AEROSPACE AND DEFENSE



molex[®]

WHEN IT'S CRITICAL > CHOOSE MOLEX

In the aerospace and defense industries, “mission-critical” isn’t just a catchphrase — it’s the core quality that drives every decision for every subsystem.

Getting the job done demands high-performance electronic solutions that withstand strict testing regimes and the harshest operating conditions imaginable while still remaining field serviceable.

At the same time, mission requirements for speed, bandwidth and performance are constantly pushing the boundaries of what’s possible. Whether you specify commercial-off-the-shelf (COTS) components or complete custom subassemblies, let Molex leverage our vast solutions experience, responsive engineering expertise and worldwide production capabilities to drive your aerospace and defense design needs.

Trusted solutions for when you need them most

Copper Flex Circuit Assemblies

Molex outperforms expectations with our extensive experience designing and manufacturing high-speed single-layer, multi-layer and Rigid Flex laminated circuits and assemblies. We have a vast history in signal integrity engineering that includes high-performance materials, constructions and interconnects.

- Impedance control
- Thermal management
- Space and weight reduction

Printed Electronics

Molex provides printed electronic solutions utilizing high-volume roll-to-roll manufacturing. We offer proof-of-concept development, prototypes, systems design and volume manufacturing. Solutions incorporate multiple components including memory and sensors, onto thin, flexible substrates.

- Reduction in weight, space, visual signature and cost
- System assembly and finishing including roll-to-roll SMT

RF/Microwave Assemblies

Molex supplies standard and custom RF coaxial connectors, cable assemblies and unique interconnect solutions for aerospace and defense applications, covering frequencies from DC to 65 GHz.

- Quick-turn design and rapid prototyping

- Non-magnetic solutions (electroless phosphorus nickel under gold plating)
- Coaxial connectors
- Cable assemblies: semi-rigid and flexible solutions

Optical Solutions

Molex optical solutions offer significant size, weight and power (SWaP) advantages over copper systems, along with immunity to electromagnetic interference. Molex has extensive experience in developing ruggedized optical interconnect solutions that meet and exceed the industry standards while maintaining the performance and density requirements customers demand.

Extensive ruggedized product offerings from Molex — cable assemblies and interconnect:

- Military 38999- and 28876-style circular connector cable assemblies
- Ruggedized Vita 66.1 compliant Optical MT Backplane interconnect and assemblies
- Optical FlexPlane™ assemblies providing high-density optical routings for PCBs or backplanes
- High-density Circular MT connectors and cable assemblies, standard and hermetically sealed

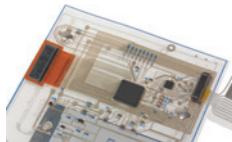
Polymicro Technologies High-Power Optical Fiber Bundle Assemblies

- Full range of specialty optical fibers, optical and capillary assemblies, and discrete micro components



Copper Flex Assemblies

Solutions able to handle the harshest environments while carrying high-speed signals and power



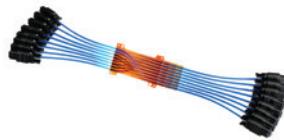
Soliege® Printed Electronics

Can be used in sensor systems and wearable sensor applications



SMPM Family of RF Connectors

Delivering high density and excellent frequency performance while reducing system weight and compensating for axial and radial misalignment



Optical FlexPlane™ Assemblies

Provide compact and manageable high-density fiber routing solutions

FOR THE APPLICATIONS YOU NEED ➤ CHOOSE SOLUTIONS FROM MOLEX

Copper Cable Assemblies

Molex copper cable assemblies provide system designers with an extensive selection of cable assembly solutions. System level integration is supported through the use of Molex's flexible design, test and manufacturing capabilities in copper cable assemblies.

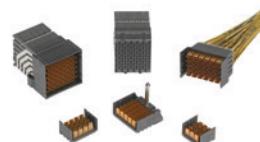
Our backplane cable assembly solutions achieve low-loss, high-speed data transfer between backplanes or servers using COTS connectors. Connect your choice of backplane interfaces (Impact™, Impel™, VHDM® and others upon request) to COTS I/O or power connectors.

- Reduce transmission losses caused by long PCB traces
- System meets specifications for VPX architecture
- Customizable backplane assemblies
- Extensive commercial experience in high-speed, high-density solutions

Low Loss — High-Frequency Microwave Cables

Temp-Flex® cables are designed using high-performance thermoplastic materials and a wide range of wire options (50 – 10 AWG). Molex leverages raw materials (shielding, insulation materials, wire), processes and cable format options (ribbon, round, bundle/composite, intermittently bonded) to create an optimal solution. Products include RF/microwave coax, twinax, low inductance cable and FEP ribbon cable.

- Meet performance requirements while holding to extremely tight tolerances
- High reliability in extreme conditions and harsh environments



Backplane Connector and Cable Assemblies

Provide the performance, configuration and density features that enable migrating up to 40 Gbps and beyond



Low Loss — High-Frequency Microwave Cables

Constructed from Temp-Flex® coaxial cables and Molex RF connectors, the Flexible Microwave Cables offer excellent electrical properties



D-Sub Mixed Layout Waterproof

FCT D-Sub connectors are available in different combinations of materials and alloys

Standard and High-Density D-Sub Connectors

Our FCT portfolio of interconnect solutions provides numerous product options to the aerospace and defense market, including D-Sub connectors (standard and mixed layout), hoods, cable assemblies and tooling. FCT connector and cable assembly solutions are on time, cost-effective, highly reliable and are supported with excellent customer service. We strive to solve your design challenges by delivering standard or customized solutions for numerous applications, including:

- In-flight entertainment
- Seat power
- Control panels
- General cabin use



COTS Solutions

Molex provides faster, smaller, lighter, cost-effective solutions for a variety of military applications. Each delivers exceptional quality, efficiency and reliability — to ensure seamless connectivity in these mission-critical applications.

Microminiature

- Including FFC/FPC, board-to-board, wire-to-board and memory card connectors
- One of the most complete ranges of fine-pitch connectors
- 0.20 to 2.00mm pitch sizes

Mezzanine products

- Multiple sizes and performance levels
- Microminiature 0.50mm lead spacing and above
- Power up to 20.0A per pin
- High-density/high-bandwidth with performance up to 28+ Gbps
- Run power, single-ended and high-speed signals of different impedances all in one connector

Power

- High-voltage, high-current options
- Current from 2.5A to more than 250.0A
- Modify, customize or adapt to meet virtually any application requirement

Ruggedized Solutions

- Brad® Micro-Change® (M12) miniature circular interconnect
- MAX-LOC® cord-grip assemblies
- ML-XT™ preassembled sealed interconnect system for vehicle wire needs
- Harsh duty I/O module

Backplane

- Impel™ connector and cable assembly delivers industry-leading signal integrity and density with performance up to 40 Gbps and beyond
- Impact™ system features superior electrical performance up to and beyond 25 Gbps
- VHDM* connector and cable assembly system provides high-speed performance utilizing the differential pair architecture

High-Speed I/O

- Broad range of proven industry standard solutions available
- Capable of data rates up to 28+ Gbps
- Innovative designs that address signal integrity and thermal challenges

Vehicle Connectivity

- Powertrain
- Body electronics
- Safety
- In-vehicle networking



SlimStack™
Microminiature Products
Offering smaller, faster and more cost-effective board-to-board solutions from 0.35 to 1.00mm pitch sizes



Brad® Micro-Change® (M12) System
Designed to provide superior quality that assures very reliable connections to withstand harsh environments, and allows fast and simple replacement of sensors, encoders and switches



High-Speed I/O
Molex's zQSPF+™ interconnect solution transmits up to 25 Gbps per-serial-lane data rates with excellent signal integrity and EMI protection

A PROVEN PARTNER FOR COMPLEX ELECTRONIC SOLUTIONS

Commercial Aerospace

Molex solutions have been an integral part of aircraft cabin management systems for decades. Now, as passengers demand more in-flight connectivity, our solutions provide power and data with unmatched signal integrity in space- and weight-saving configurations.

Where you'll find Molex today:

- **Aircraft Management Systems**

- Power, water and waste monitoring
- Engine control
- Fuel monitoring

- **Cabin Applications**

- In-flight entertainment
- Wi-Fi
- Mobile phone integration
- Data communications
- Lighting, kitchen and lavatory systems

- **Aircraft Avionics**

- Black box applications
- Radar and communications systems
- Navigation
- Flight-management systems
- Ground networks

Defense

Electronics are a critical part of modern defense, whether communication systems for troops and equipment or advanced guidance and control systems. Our solutions deliver the speed, bandwidth and signal integrity these systems require in configurations and materials designed to withstand harsh environments, at substantial savings in size, weight, power and cost (SWaP-C).

Consider Molex solutions for these applications:

- **C4ISR**

- Radar
- Battlefield networks
- Software-defined radio
- Night/thermal vision systems
- Computer/data warehouse systems

- **Missiles**

- Active guidance systems
- Flight and targeting sensors
- GPS
- Fuzing systems
- Ground control systems

- **Manned and unmanned vehicles**

- Ruggedized data communications
- Hand-held launch systems
- Airframes
- Ground and naval systems
- Monitoring systems

- **Aircraft Avionics**

- Black box applications
- Radar and communications systems
- Navigation
- Flight-management systems
- Ground networks





Ready For Anything

Molex is perfectly positioned for your aerospace and defense project.



Unique Process

We don't simply supply interconnects; we supply complete electronic solutions. This includes the ability to design a uniquely-configured product to satisfy your specific design needs.

Solutions Breadth

Our electronic solutions include RF/microwave connectors and cable assemblies; single, multi-layer and rigid copper flex assemblies; low-loss Temp-Flex® cable, optical solutions and rugged copper cable assemblies, covering your needs for high-speed, high-density signal delivery with absolute transmission integrity.

World-Class Technology

Molex brings decades of commercial innovation in lightweight, high-bandwidth solutions to the aerospace and defense industry. We control our own global supply chains. We source the highest-quality components and deliver world-class design as well as the ability to manufacture and assemble.

Full-Solutions Engineering

Reduce risk and increase control by leveraging our vertically integrated and responsive in-house design, manufacturing and assembly services, with engineering support throughout the process from rapid-iteration prototyping to final delivery.

Trusted and Open

Molex is a robust and stable U.S. based partner with a worldwide footprint of more than 40 manufacturing plants, including multiple facilities capable of supporting ITAR solutions. Our partners enjoy exceptional data access through our world-class website, which provides a variety of design tools to help you meet your design needs.

Ready to engage?

Aerospace and defense designs are among the most sophisticated technical systems on the planet. When you choose Molex, you're gaining a partner. Molex is eager to provide you with engineering expertise and operational support from design through delivery, to exceed your expectations.

When it's mission-critical, choose Molex.
molex.com/aerodefense

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