

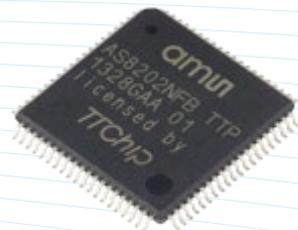


## TTP for Fly-By-Wire Platforms

# Parker's TTP-Based Generic Fly-By-Wire Actuation Platform



More about this  
success story online



[www.tttech.com/aerospace](http://www.tttech.com/aerospace)

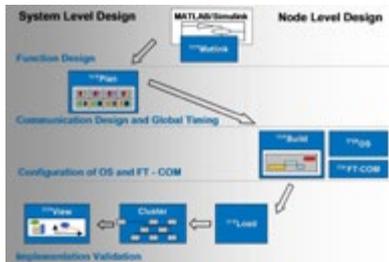


“ We are committed to building the best digital fly-by-wire platform in the industry and have selected the most advanced, yet mature solution available to provide increased reliability, reduced development cycle, and an overall improved value proposition. ”

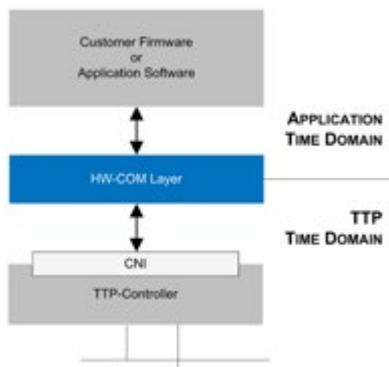
*Mark Seidel, Parker Aerospace Control Systems Division Vice President and General Manager*



Fly-by-wire flight controls replace the conventional hydro-mechanical flight control system that uses a series of pulleys and/or rods that directly control flight surfaces and provides easier installation and increased functionality. With fly-by-wire flight control, pilot inputs are interpreted by sophisticated on-board computers to ensure that the signals being sent to the control surfaces optimize the aircraft's performance. Parker Aerospace has been selected as the exclusive supplier of fly-by-wire flight control systems for all new Bombardier aircraft programs requiring this technology for a period of ten years.



Parker Aerospace, a global leader in the design, manufacture, and servicing of flight control, hydraulic, fuel, fluid conveyance, engine components as well as systems for aerospace and other high-technology markets, has chosen TTTech to provide an integrated communication solution based on TTP® (Time-Triggered Protocol) for Parker's new generic fly-by-wire actuation platforms. Initial applications of this platform will be on the Bombardier CSeries and Embraer Legacy 450/500 aircraft programs.



TTTech is the leading supplier of technology and software products in the field of time-triggered systems. This high-tech company located in Vienna, Austria, provides an innovative data communication protocol. TTP is a key technology for tight digital integration of safety-critical systems in more electric aircraft. This open, modular and scalable aerospace control system platform technology is designed for efficient system reconfiguration, upgrades and growth. TTP enables highly reliable distributed computing and networking for modern, more efficient aerospace systems at lower total lifecycle costs within shorter time-to-market.

“ TTP is designed for reusable, highly modular data communication platforms for the most demanding applications - such as fly-by-wire - in the aerospace industry. We are looking forward to supporting Parker and its customers and partners in the development of its advanced generic fly-by-wire platforms for several new aircraft programs. ”

*Georg Kopetz, Member of the Executive Board  
TTTech Computertechnik AG*

TTP Communication Protocol (SAE AS6003) offers higher bandwidth compared to CAN, MIL STD-1553 and ARINC 429 and strictly deterministic performance. TTP provides significant advantages for the design of advanced integrated systems and modular, reusable and less complex system architectures.

Modular embedded computing platforms based on TTP offer the same set of benefits as Integrated Modular Avionics, but in a completely distributed system. They help to reduce the design and system integration effort, costs for upgrades, incremental modernization and obsolescence management. With TTP, modular certification and system reuse on different aircraft platforms is supported. Through the reuse of TTTech's proven solutions in the aerospace industry, Parker will benefit from substantial risk and cost reduction as well as faster time-to-market.

The TTP-based communication platform is a mature DO-254/DO-178B Level A solution for design of critical embedded systems. It consists of a set of controllers, a physical layer, design/verification tools, embedded middleware components, and production testing equipment to cover all program lifecycle needs. By using a highly efficient set of tools and hardware and software components, development time can be reduced considerably. TTP components and related system design and integration methodology have been employed and proven in demanding commercial aerospace programs since 2000.



#### ▶ CUSTOMER / PROJECT

Bombardier CSeries – TTP-based generic fly-by-wire actuation platform

#### ▶ CHALLENGE

The customer was looking for an advanced, yet mature solution for its digital fly-by-wire platform to provide increased reliability, reduced development cycle and overall improved value proposition.

#### ▶ SOLUTION

TTTech' TTP as a key technology for the fly-by-wire platform enables highly reliable distributed computing and networking at lower life cycle cost and shorter time-to-market.

# Reaching for the Sky with Certified and Safe Solutions

## About TTTech Computertechnik AG

TTTech Computertechnik AG is the technology leader in robust networked safety controls. The company's solutions improve the safety and reliability of networked electronic systems in the transportation and industrial segments. Our product portfolio offers best-in-class certifiable products according to IEC 61508, ISO 26262, EN 13849, DO-254 and DO-178B requirements.

TTTech customers win as they deploy dependable networks and real-time controls more efficiently and profitably. Benefits include shorter time-to-market due to re-use of proven architecture, higher integration with reduced cost, ease of system integration, and obsolescence management as well as highly scalable and modular open real-time architectures.

## About Parker Aerospace

Parker Aerospace is an operating segment of Parker Hannifin Corporation. Parker Aerospace designs, manufactures, and services flight control, hydraulic, fuel, fluid conveyance, thermal management, engine components as well as systems for aerospace and other high-technology markets. Based in Irvine, California, its product lines include primary and secondary flight control actuation, power generation and control components, thrust-reverser actuation systems, electrohydraulic servovalves, electric motor-driven hydraulic pumps, fuel pumps, motor-operated valves and fuel equipment, lubrication oil reservoirs, lubrication and scavenge pumps, fuel measurement and management systems, cockpit instrumentation, flight inspection systems, lightning-safe products, pneumatic subsystems and components, fluid metering delivery and atomization devices, wheels, brakes, and fluid conveyance products such as hoses, tubes, disconnects, and fittings.

## About Parker Hannifin

With annual sales exceeding \$12 billion, Parker Hannifin is the world's leading diversified manufacturer of motion and control technologies and systems, providing precision-engineered solutions for a wide variety of mobile, industrial and aerospace markets. The company employs approximately 58,000 people in 47 countries around the world. Parker has increased its annual dividends paid to shareholders for 55 consecutive years, among the top five longest-running dividend-increase records in the S&P 500 index.

Further information is available at [www.parker.com](http://www.parker.com)



### Vienna, Austria – Headquarters

Phone +43 1 585 34 34-0  
[office@tttech.com](mailto:office@tttech.com)

### Japan

Phone +81 52 485 5898  
[office@tttech.jp](mailto:office@tttech.jp)

### USA

Phone +1 978 933 7979  
[usa@tttech.com](mailto:usa@tttech.com)

### China

Phone +86 21 5015 2925-0  
[china@tttech.com](mailto:china@tttech.com)