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TTP Communication Protocol

RATIONALE

TTP is used in a variety of aerospace applications (for example, Boeing 787 power generation systems and environmental controls, cabin pressure systems for Airbus A380, Aermacchi M-346 FADEC…) and continues to attract significant cross-industry attention for commercial and defense applications.

The SAE standardization of TTP:

- acts as an integration risk reduction mechanism
- ensures compatible physical implementations
- enables common test/maintenance equipment
- leverages industry investments
- ensures openness and enables multiple component and tool suppliers

and therefore reduces the overall cost and risk of applying this technology.

The SAE standardization based on TTP specification protects long-term system design investments, enables development of the COTS ecosystem, and minimizes sourcing risks for OEMs, integrators and system suppliers.

INTRODUCTION

The Time-Triggered Protocol (TTP) is a real-time communication protocol for the interconnection of electronic modules of distributed fault-tolerant real-time systems. TTP is a core technology for fault-tolerant distributed embedded computing and enables design of deterministic embedded computing platforms for critical systems. As such, it contains communication protocol capability for data exchange among nodes, but also provides higher level services for design of reusable generic platforms with robust partitioning among functions. This document specifies the structure of the TTP protocol, services and mechanisms on an abstract level without implementation-specific details.

TTP's features support the design of systems with a high degree of dependability, safety, availability, reliability, maintainability, and reduced system complexity.

Some methods contained in the document are protected by granted and pending patents, and underlie SAE standard IP policy.

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