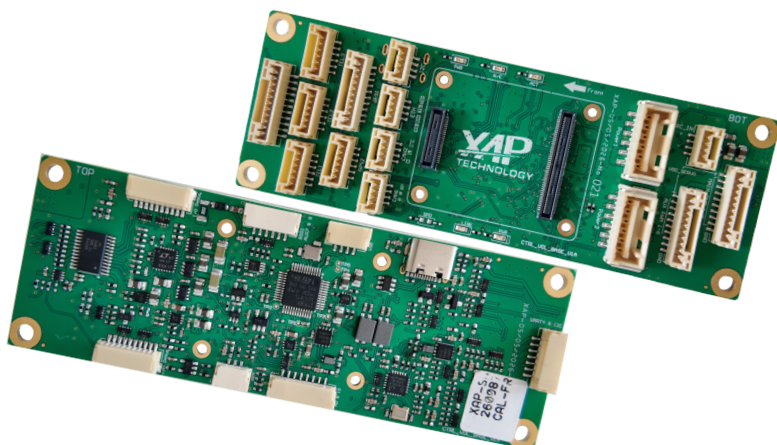


FLIGHT CONTROLLER INTERFACE BOARD



EMBEDDED ELECTRONICS ENGINEERED FOR MISSION- CRITICAL SYSTEMS

XAP designs and manufactures embedded electronic architectures for demanding operational environments where system continuity, electrical robustness and long-term reliability are fundamental mission requirements.

The XAP Flight Controller Interface Board has been developed as the central interconnection backbone of professional UAV platforms operating in defense, aerospace, industrial and autonomous system applications.

In complex drone architectures, the flight controller interface board is far more than a simple connectivity layer. It directly conditions the operational reliability of the entire aerial system by managing the interaction between the flight computer, power distribution, sensors, actuators, communication buses and safety systems.

The XAP architecture was specifically engineered to eliminate traditional single points of failure commonly encountered in embedded UAV integration.

Derived from engineering methodologies developed for highly constrained environments — including top-level motorsport electronic systems — the platform introduces an advanced level of integration into industrial UAV architectures while remaining fully compatible with PX4 and ArduPilot ecosystems.

TYPICAL APPLICATIONS

Industrial UAV platforms
Tactical and defense UAV systems
UAV retrofit and modernization programs
Precision agriculture drones
PX / ArduPilot R&D platforms
Autonomous charging and docking systems
Multi-rotor aerial platforms
Embedded aerospace demonstrators

UNIVERSAL EMBEDDED INTERFACE PLATFORM FOR PROFESSIONAL UAV ARCHITECTURES

CENTRALIZED UAV SYSTEM INTERCONNECTION:

Secure interfacing between the flight controller and all onboard subsystems including power management, sensors, telemetry, actuators and communication buses.

MULTI-SOURCE REDUNDANT POWER MANAGEMENT:

Automatic switching between three independent power sources ensures uninterrupted system operation during power source failure events.

EMBEDDED ACTIVE SUPERVISION:

Dedicated ARM supervisory microcontroller manages boot sequencing, reset functions, USB detection and communication bus monitoring.

NATIVE PX & ARDUPILOT COMPATIBILITY:

24 JST-GH standard connectors and native pin compatibility significantly reduce UAV integration and commissioning time.

DUAL REDUNDANT CAN ARCHITECTURE:

Two independent CAN FD buses support redundant actuator and sensor architectures compliant with UAVCAN / DroneCAN ecosystems.

EMBEDDED ETHERNET CONNECTIVITY:

Integrated 10/100 Ethernet interface enables real-time supervision, OTA firmware updates and Ground Control Station connectivity.

FULL ENVIRONMENTAL PROTECTION:

Dedicated ESD protection is implemented across all critical data lines and interfaces for operation in harsh environments.

MODULAR UAV ECOSYSTEM INTEGRATION:

Designed to operate natively with XAP UAV architectures, CAN ESC systems, GPS modules and autonomous drone infrastructures.



► DRONES: *FLIGHT CONTROLLER INTERFACE BOARD*

POWER MANAGEMENT

Power Controller	3-source priority PowerPath
Switching Mode	Automatic seamless switching
Secondary Multiplexer	2 sources — 40 mΩ — 2.5 A
Regulators	2 × 300 mA regulators with POR
Input Voltage	5 V

SOFTWARE & ECOSYSTEM COMPATIBILITY

PX4 Autopilot	Native compatibility
ArduPilot	Native compatibility
XAP UAV Ecosystem	Full integration
UAVCAN / DroneCAN	Supported
Firmware Update	USB-C

CONNECTORS & FIELD INTERFACES

Main Board-to-Board Connector	Hirose DF40HC — 100 pins
Secondary Board Connector	Hirose DF40HC — 50 pins
GPS + Safety Interface	JST-GH 4P
Telemetry Interfaces	2 × JST-GH 4P
CAN1 / CAN2	2 × JST-GH 6P
PWM Outputs	JST-GH 10P
RC / DSM / RSSI	3 × JST-GH 4P
Debug Interfaces	2 × JST-GH 10P
High-Power Interfaces	2 × JST-GH SRSS 10P
Total Connectors	24 JST-GH + 2 Hirose DF40
Compatibility	Flight controller pinout

NETWORK & HIGH-SPEED CONNECTIVITY

Ethernet	10/100 Mbps
CAN Interfaces	2 × TJA1051TK — CAN FD up to 5Mb/s
USB Interface	USB Type-C — ESD protected
External SPI	1 dedicated JST-GH port
External I ² C	1 dedicated JST-GH port
UART / Telemetry	3 UART telemetry ports
PWM	8 + 6 from 3.3 to 5 V

ENVIRONMENTAL & COMPLIANCE

Operating Temperature	−40°C to +85°C
Production Level	Volume production ready
Test Points	5 × SMD test points

SUPERVISORY MICROCONTROLLER

Architecture	ARM Cortex
Frequency	72 MHz
Memory	64 KB Flash / 20 KB RAM
Functions	Boot, reset, USB detection, bus monitoring

PRODUCT SPECIFICATIONS

Product Type	Stand-alone PCB
Date & Revision	May 2026 - VIA
Product variants	Available
Manufacturer	XAP Technology

REFERENCES

PS0587	FLIGHT CONTROLLER INTERFACE BOARD
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