

Custom Flight Controller Development

Statement of Work — Template

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*How to use this template: fill in each section as far as you can and send it to us. Leave anything you are unsure about blank or mark it **[advise]** — we will propose a value in the quotation. Sections map one-to-one to the line items in our itemized quotation, so a completed template normally receives a quote within a few working days.*

Document control

Field	Entry
Project / board name	
Your company	
Contact (name, email)	
Version / date	v1.0 /
Supersedes	(none)

1. What you want to build

Describe the board in a few sentences: what it replaces or competes with, form factor (single board / module + carrier), target vehicles (multirotor, fixed-wing, VTOL, rover, boat), target market and price point, and the companion-computer stack it must pair with.

Item	Your requirement
Reference / comparable product	
Form factor	
Vehicle types	
Companion computer(s)	
Target unit price (production)	

2. Flight controller core specification

Item	Requirement (or [advise])	Notes
MCU	e.g. STM32H743 / H753 / H7A3	
Architecture	single MCU (AIO) / dual MCU (FC + IO)	
IMU 1 (primary)	part, isolation, heater y/n	
IMU 2 / IMU 3	part(s) or none	
Barometer 1 / 2	parts; separate vendors for redundancy?	
Magnetometer	part, onboard / external	
Storage	NOR flash / microSD	
Other sensors		

3. Power architecture

Item	Requirement
Battery input range (cells)	e.g. 3S–12S

Item	Requirement
Power input redundancy	1 / 2 independent power ports
Voltage / current monitoring	per input y/n
Sensor rail isolation	dedicated LDO for IMU/baro y/n
Servo rail / BEC	

4. Ports and connectors

List every external port. If you follow an industry connector standard (JST GH / Pixhawk convention) say so; we default to it.

System	Port	Connector / standard	Qty
Core interconnect	FC module <-> carrier	e.g. board-to-board (DF40 class)	
Companion computer	UART / Ethernet / USB		
Navigation	GNSS 1 / GNSS 2		
Actuators	PWM / DShot main + aux, RC in		
Comms bus	CAN 1 / CAN 2 / TELEM / I2C		
Peripherals	safety switch, buzzer, LED		
Power	power module input(s)		
Debug	USB, SWD		

5. Companion computer compatibility

Companion	Must support (y/n)	Interface	Logic-level note
Raspberry Pi (current gen)		UART / Ethernet	3.3 V
NVIDIA Jetson (model)		UART / Ethernet	
AI accelerator (via companion)			
Other			

6. Mechanical and environmental

Item	Requirement
IMU vibration isolation	mandatory / optional
IMU heater / thermal isolation	mandatory / optional; warm-up target
Enclosure	none / plastic / CNC aluminum shielded
Board dimensions / mounting	
Operating temperature	e.g. -20 to +55 C; verified on IMU only / full chain
Ingress / conformal coating	

7. Carrier board design kit (optional)

Tick what you need so that you can design your own carrier boards later:

Deliverable	Required
Full interconnect pinout map (signal, level, current, direction)	
KiCad symbol + footprint library for the module	
Annotated reference carrier schematic	
Carrier design guidelines (impedance, decoupling, keep-outs, clearances)	

8. Firmware and testing

Item	Requirement
Firmware targets (priority order)	ArduPilot / PX4 / Betaflight / iNAV
Acceptance	Mission Planner / QGroundControl: all sensors healthy
Test report scope	sensor health, IMU/EKF, heater warm-up, power rails, PWM/DShot, companion link (per platform)
Flight testing	bench only / hover / mission flight
Report format	written test cases with method and pass/fail

9. Compliance and sourcing

Item	Requirement
Hard exclusions	e.g. NDAA Section 889 entities
Country-of-origin preference	strict / prefer / none
Lifecycle	minimum years of part availability
Certification intent	none / pre-compliance / type certification support

10. Budget, phasing and deliverables

State a not-to-exceed budget. We quote itemized against it and, where scope exceeds it, propose what to phase into a later v1.1 rather than cutting silently.

Item	Entry
Not-to-exceed budget (USD)	
Desired delivery date	
Must-have in v1.0	
Acceptable for v1.1	

Standard deliverables (tick to include):

Deliverable	Include
Schematic + PCB source (.kicad_sch, .kicad_pcb)	
BOM + manufacturing package (Gerber, drill, pick-and-place, assembly)	
ArduPilot hwdef.dat, bootloader; PX4 board config / BSP (if selected)	
Carrier board design kit (Section 7)	
Test report (Section 8)	
Hardware documentation, interface spec, pin assignments	
Enclosure 3D model / drawings (if selected)	

Deliverable	Include
Prototype units (quantity)	

Intellectual property: project-specific design files transfer to the client on final payment. FUKUSHIMA retains a non-exclusive right to reuse generic building blocks that do not identify the client's product. Payment is normally 30% on order, 40% on prototype shipment, 30% on final delivery.

Revision history

Rev	Date	Changes
v1.0		Initial version