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Subsystems

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Jump to: [navigation](#), [search](#)

Mostly a subsystem is a part offering a specific functionality with a defined interface and can have multiple different implementations. (See [sw/airborne/subsystems/...](#))

They are selected and configured with a `<subsystem name="foo" type="bar">` in the [firmware section of the airframe file](#).

All this does is basically include a makefile `foo_bar.makefile` that adds the respective sources and adds a few configuration options. (See [conf/firmwares/subsystems/...](#))

This makes it easier to put an airframe file together (they replace the old raw makefile section) and also allows us to change the code and move/rename files behind the scenes without breaking everyones airframe files.

See [FirmwareArchitecture](#) for the differences to [Modules](#), as well as how to write a new subsystem.

[Subsystems](#)[Subsystem/actuators](#)[Subsystem/ahrs](#)[Subsystem/control](#)[Subsystem/gps](#)[Subsystem/imu](#)[Subsystem/ins](#)[Subsystem/radio control](#)[Subsystem/stabilization](#)[Subsystem/telemetry](#)[Subsystems](#)

Available Subsystems

Name	Types	Firmwares	Architecture	Description
gps	<ul style="list-style-type: none"> ublox ublox_utm nmea mediatek_diy skytraq sirf 	<ul style="list-style-type: none"> all fixedwing all fixedwing rotorcraft rotorcraft 	<ul style="list-style-type: none"> all 	GPS drivers
imu	<ul style="list-style-type: none"> analog apogee aspirin_v1.0 aspirin_v1.5 aspirin_v2.1 aspirin_v2.2 aspirin_i2c_v1.0 	<ul style="list-style-type: none"> all all all all all all all 	<ul style="list-style-type: none"> all stm32f4 all all all all all 	IMU drivers Traditional IR sensors can be used for fixedwing

	<ul style="list-style-type: none"> • aspirin_i2c_v1.5 • aspirin2_i2c • b2_v1.0 • b2_v1.1 • b2_v1.2 • drotek_10dof_v2 • gl1 • yai • krooz_sd • navgo • umarin • crista • crista_hmc5843 • ppzuav 	<ul style="list-style-type: none"> • all • all • all • all • all • all • all • all • all • all • all • rotorcraft • rotorcraft • fixedwing 	<ul style="list-style-type: none"> • all • all • all • all • all • all • all • stm32f4 • lpc21 • lpc21 • all • all • all 	but an IMU subsystem is not required
ahrs	<ul style="list-style-type: none"> • int_cmpl_quat • float_cmpl • float_dcm • int_cmpl_euler • float_mlkf • infrared 	<ul style="list-style-type: none"> • all 	<ul style="list-style-type: none"> • all 	AHRS algorithms
ins	<ul style="list-style-type: none"> • alt_float • gps_passthrough • xsens • xsens700 • <i>no_type</i> • hff • extended • ardrone2 • float_invariant 	<ul style="list-style-type: none"> • fixedwing • fixedwing • fixedwing • fixedwing • rotorcraft • rotorcraft • rotorcraft • rotorcraft • all (experimental, only tested on fw) 	<ul style="list-style-type: none"> • all • all • all • all • all • all • all • all • all • mcu with fpu (e.g. stm32f4) 	<p>INS algorithms</p> <p>Most of the INS filters are only providing position and speed, and they need to be used together with an AHRS filter for attitude</p> <p>Currently, only the experimental invariant filter is a full INS</p>

radio_control	<ul style="list-style-type: none"> • ppm • spektrum • datalink • superbtrf_rc • sbus • sbus_dual 	<ul style="list-style-type: none"> • all 	<ul style="list-style-type: none"> • all • STM32 • all • STM32 • all • all 	Radio Control implementations
telemetry	<ul style="list-style-type: none"> • transparent • transparent_usb • xbee_api • superbtrf 	<ul style="list-style-type: none"> • all • all • all • rotorcraft 	<ul style="list-style-type: none"> • all • LPC21xx • all • STM32 	Telemetry implementations
actuators	<ul style="list-style-type: none"> • mkk • mkk_v2 • asctec • asctec_v2 • pwm • dualpwm • skiron 	<ul style="list-style-type: none"> • all 	<ul style="list-style-type: none"> • all 	Drivers for different ESCs and servos
stabilization	<ul style="list-style-type: none"> • int_quat • float_quat • int_euler • float_euler • indi 	<ul style="list-style-type: none"> • rotorcraft 	<ul style="list-style-type: none"> • all 	Attitude control system for rotorcraft

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Categories:

- [Software](#)
- [Developer Documentation](#)
- [Subsystems](#)

Navigation menu

Personal tools

- [Create account](#)
- [Log in](#)

Namespaces

- [Page](#)
- [Discussion](#)

Variants

Views

- [Read](#)
- [View source](#)
- [View history](#)

Actions

Search

Navigation

- [Home](#)
- [Hardware](#)
- [Software](#)
- [FAQ](#)
- [Downloads](#)
- [Remembering Hecto](#)

Communication

- [Mailing list](#)
- [Gitter](#)
- [Contact](#)

Development

- [How to contribute](#)
- [Developer Guide](#)
- [Doxygen docs](#)
- [Git repository](#)
- [Build tests](#)

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- [Recent changes](#)
- [Random page](#)
- [Editing Help](#)

Print/export

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Tools

- [What links here](#)
- [Related changes](#)
- [Special pages](#)
- [Permanent link](#)
- [Page information](#)

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