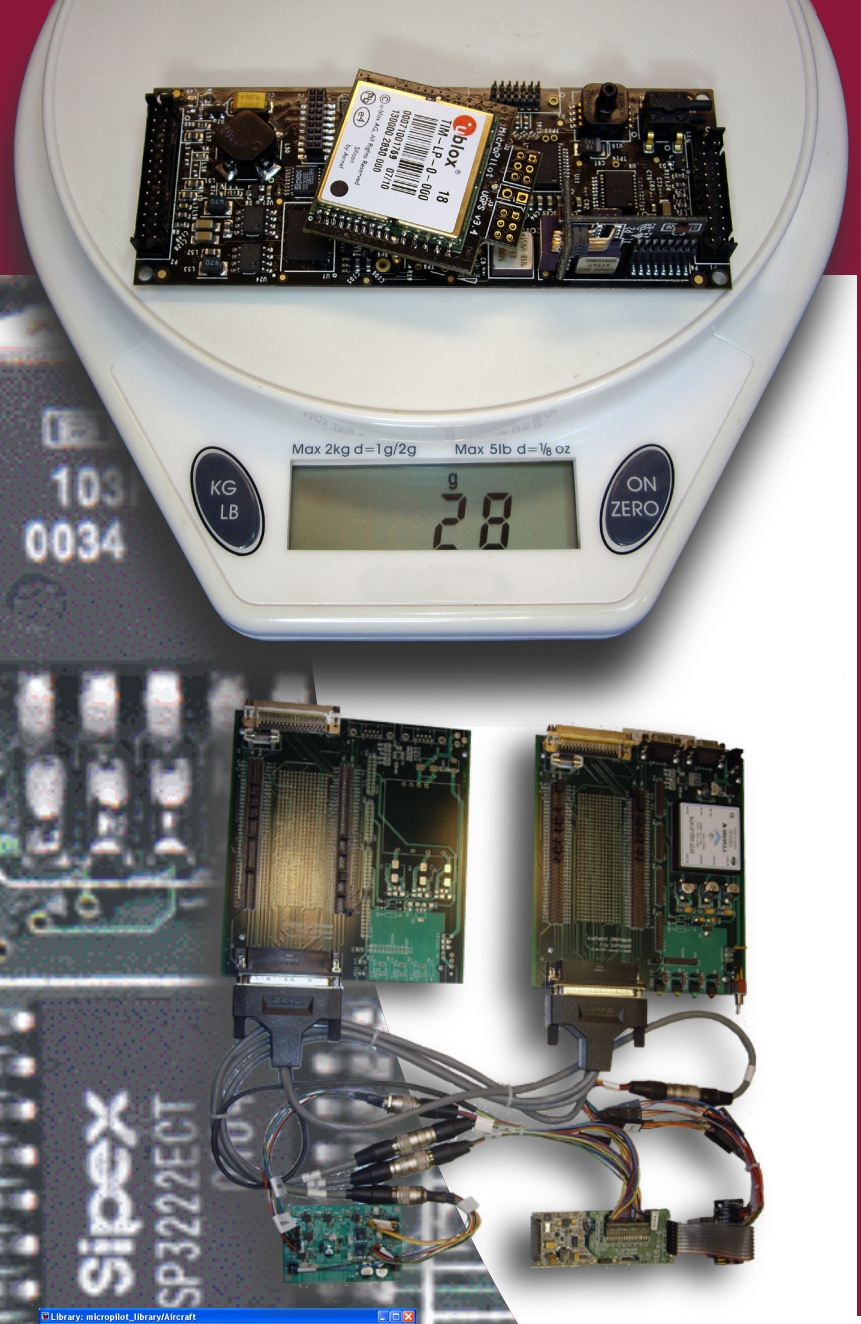
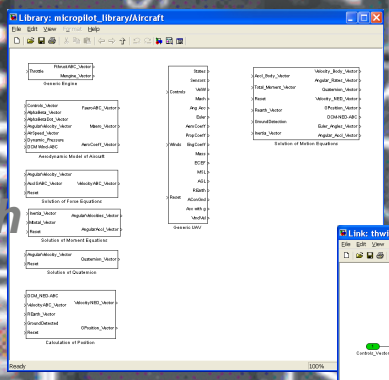
trueHWIL^{mp}
True Hardware in the Loop Simulator

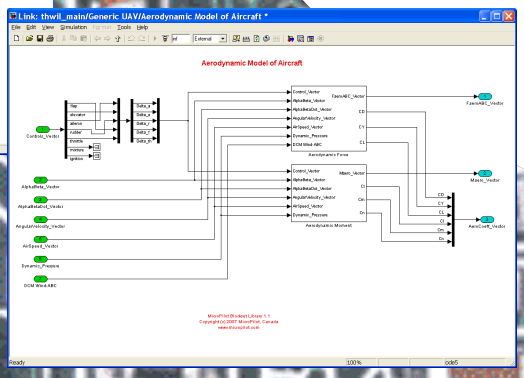


Over 600 clients in 60 countries.

MicroPilot's new True Hardware in the Loop (trueHWIL^{mp}) simulator offers UAV integrators and researchers the highest fidelity UAV autopilot simulation available on the market today.

Existing quasi hardware-in-the-loop simulators approximate a UAVs flight by exchanging sensor and control surface position information with the autopilot over a serial port or CAN bus. This form of simulation introduces inaccuracies as an autopilot in-flight reads this information directly from its sensors instead of a serial port or CAN bus. MicroPilot's trueHWIL^{mp} offers a dramatic improvement in simulator fidelity by electrically simulating all sensor outputs using analog-to-digital converter, signal conditioning and PWM interface boards. MicroPilot's trueHWIL^{mp} allows our customers to replicate the conditions their UAVs experiences in flight offering superior on-the-ground validation of autopilot setup and integration. Micropilot's trueHWIL allows you to validate your UAV in your lab thereby reducing the time, expense and weather related delays associated with flight testing. MicroPilot's trueHWIL is a valuable tool when the time comes to certify your UAV.





- Includes a full fixed wing simulator implementation in simulink.
- Simulink blocks includes aircraft aerodynamics, aircraft environment, equations of motion, autopilot hardware, transformations, solution of force equations, solution of quaternion equations, NED to ABC (and inverse), wind to ABC (and inverse).
- No additional Matlab libraries or block sets are required.
- Full electrical simulation of all autopilot sensors including gyros, accelerometers and pressure sensors
- Includes a pre-compiled matlab simulator that can be used right out of the box for users who choose not to purchase matlab/simulink/real time workshop.
- Simulator parameters can be monitored and updated from a remote PC allowing customization of the pre-compiled simulator.

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World Leader in Small UAV Autopilots

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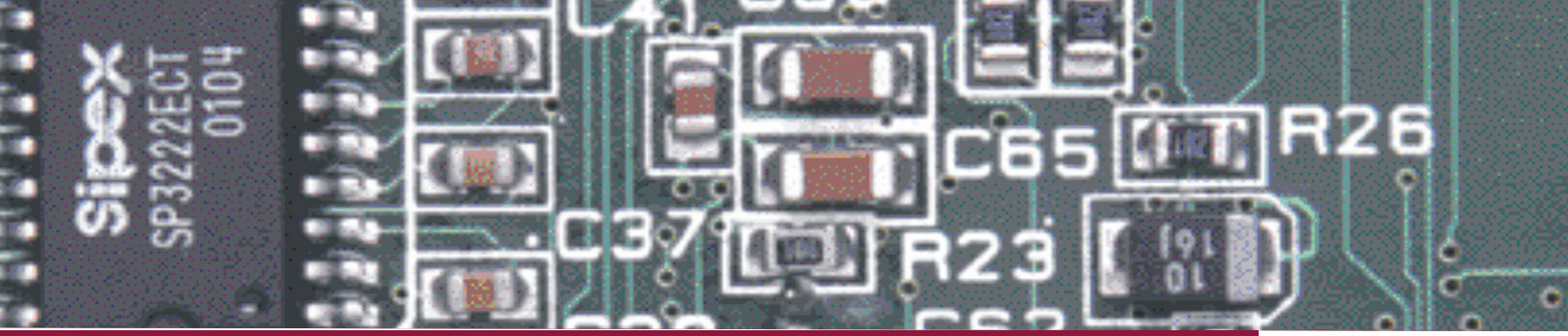
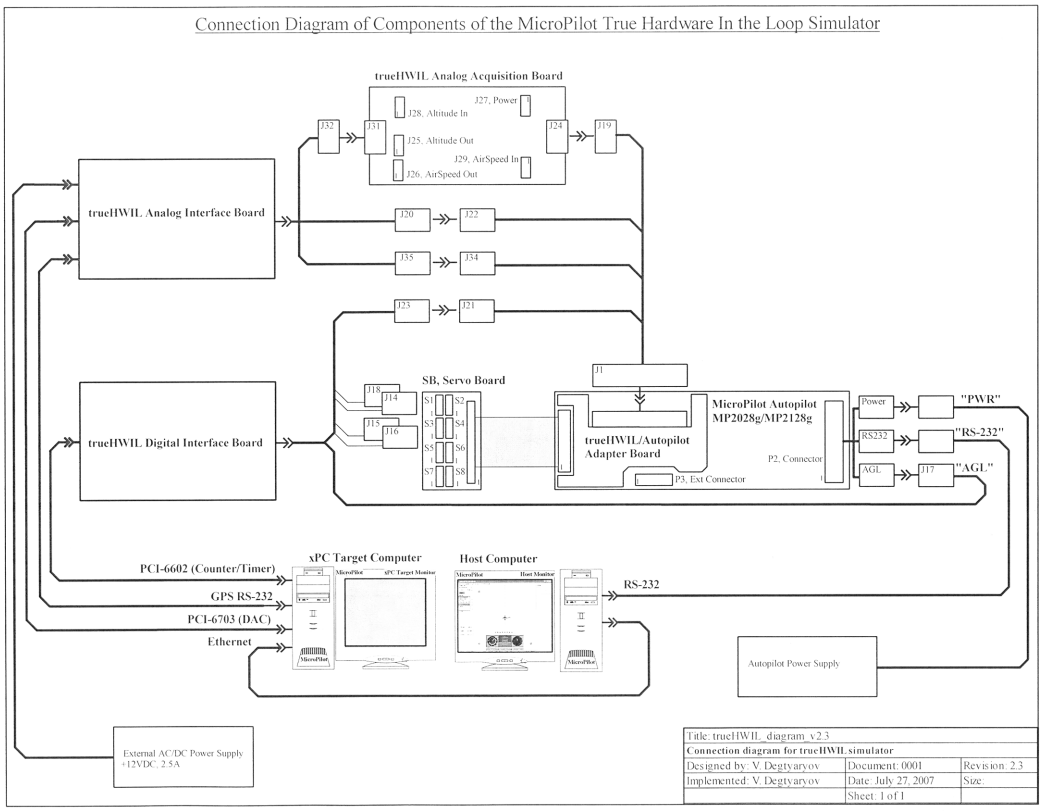


trueHWIL^{mp} Block Diagram

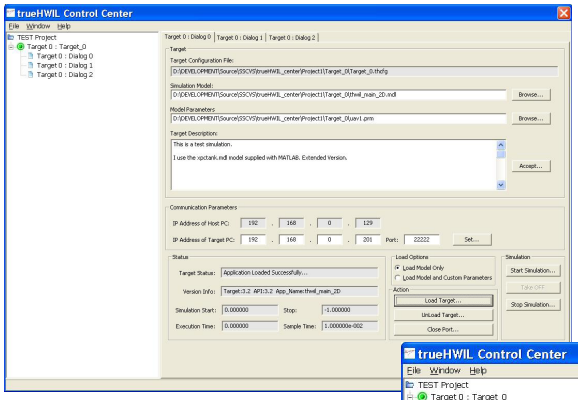


highest fidelity UAV autopilot simulation available on the market today...

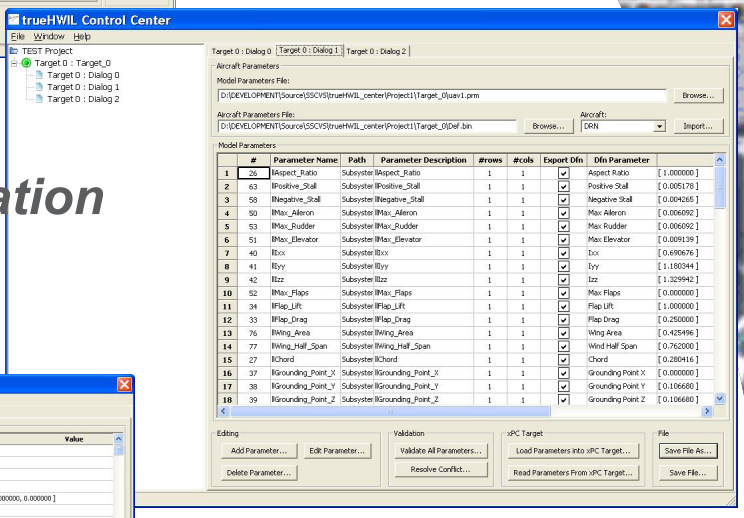
**This document is a draft and subject to change without notice.*

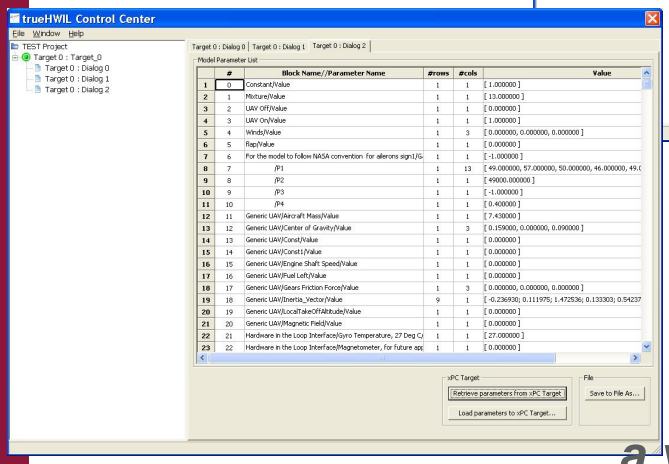
MicroPilot®

test in your lab and save the time, expense and weather delays associated with flight testing



full electrical simulation of all sensors





a valuable tool when the time comes to certify your UAV

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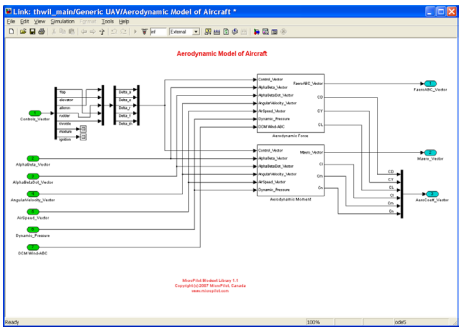
the most accurate and complete UAV validation tool available



MicroPilot Interface Hardware (included)

- MicroPilot trueHWILmp Interface Box (Analog Option)
- MicroPilot trueHWILmp Interface Box (Digital Option)
- MicroPilot Analog Acquisition Board
- MicroPilot Sensorless Autopilot with the Adapter board and Connector Kit

MicroPilot Software (included)

- Matlab Reference simulator
- Pre-compiled XPC UAV simulation
- trueHWIL control center
- MicroPilot Matlab simulation block set

Customer Supplied Interface Hardware required for trueHWIL^{mp} (not included)

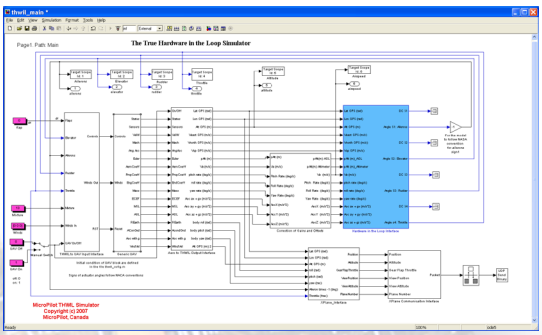
- National Instruments NI PCI-6602 Counter/Timer Device
- National Instruments NI PCI-6703 Digital to Analog Converter (DAC)
- National Instruments NI SH68-68-D1 Shielded Cables

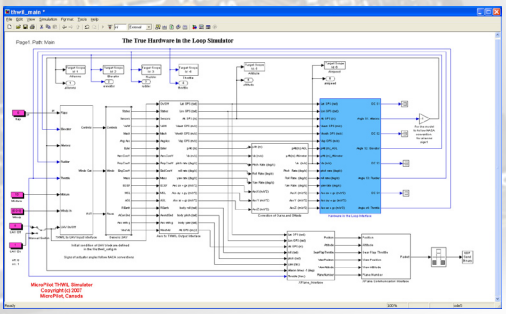
Customer Supplied Software only required to build custom UAV models (not included)

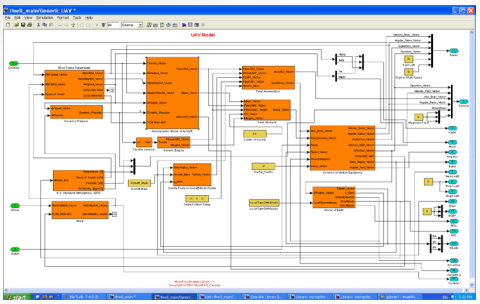
- Matlab release R2007z
- Real-Time Workshop
- xPC Target
- Microsoft Visual C++, Standard Edition

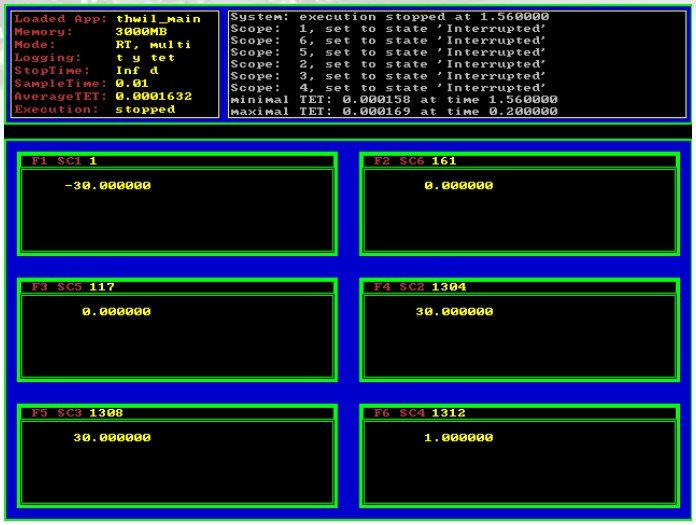
Other Optional Customer Supplied Software (not included)

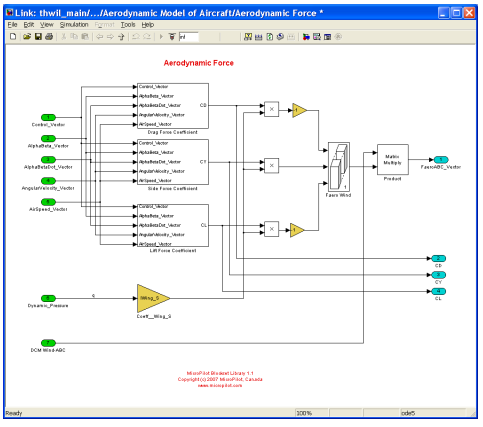
- Laminar Research X-Plane (useful for Visualization)











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