

# SolAero

the DO-160 compliant  
DO-178C/DO-254 certified DAL B computer for  
airborne instruments

Developing certified avionics systems and cockpits has always been a difficult proposition with high development costs, project delays and associated risks on an aircraft cycle. This has locked aircraft designers into standard and non-flexible cockpit avionics solutions. (UN)MANNED radically changes this reality with its Sol Avionics System where complete custom solutions are developed with fully pre-certified components, with integrated computers and software.

Sol Avionics System concept provides a pre-certified Sol computer with pre-loaded certified software SolOS. Customized user avionics applications are created through configuration of a pre-certified avionics building blocks, called Sol Computers. Sol Computers are a range of integrated DO-254 certified avionics computers, each optimized for a different operating condition. Complete user applications are rapidly developed by configuring one or multiple Sol Computer system into a specific application. Customization is achieved by programmable configuration files. User application configuration is developed directly from high-level system requirements without any executable software coding.

Sol Avionics System is fully integrated and completely self-sufficient, is independent of any other SW platform and requires no 3<sup>rd</sup> party licenses. Sol Computer components are exempt from US government export control.

## Product Description

SolAero is the high-performance avionics computer in a small housing that can fit any cockpit application. SolAero has capabilities to drive dual screens at 4K resolution, high performance video processing, a large number of discrete I/O and networking through several avionics buses. SolAero is particularly well suited to non-standard custom certifiable cockpit applications optimized for specific aircraft, even at low production volumes.

SolAero comes fully integrated with its SolOS operating system and executable. SolOS provides built-in support for a large number of avionics interfaces and standards for Primary Flight Display, MFD, Navigation Display, Flight Management Systems, EICAS systems and thus enables fully integrated cockpits for even small volume or customized aircraft.

Development licenses are available for our clients to customize SolAero to their final application on a range of commercial computer platforms such as Microsoft Windows, Linux, macOS, iOS. These commercial platforms also allow simulation, integration and user interface testing on non-certified platforms.

## Features

- ✓ Powerful processor with quad-core ARM Cortex A53 as main processor
- ✓ Independent safety processor
- ✓ Designed as a fully airborne computer with DO-160G and DO-254 DAL-A certification
- ✓ Fan-less, conduction cooled and hermetically sealed aluminum case housing
- ✓ Easy integration with fully pre-loaded software platform SolOS
- ✓ Support for a large number of standard avionics interfaces
- ✓ Powerful graphics processing for glass cockpit and trainer applications
- ✓ Support for 4 channel video input with high-speed FPGA-based processing
- ✓ Support for non-certified video into certified cockpit with picture-in-picture

## Applications

- ✓ Certifiable fully integrated glass cockpits
- ✓ Certifiable cockpit instruments
- ✓ Certifiable UAV airborne flight computer
- ✓ Certifiable airborne data processing
- ✓ Interfacing legacy video to certified cockpit applications
- ✓ Certifiable artificial intelligence support for airborne autonomous flight and decision making



## Specifications

- ✓ fanless & sealed aluminium case
  - ✓ 96.7 mm x 60.4 mm x 35.4 mm
  - ✓ 150 grams
- ✓ Quad-core ARM Cortex-A53 processor with Dual Cortex R5
- ✓ 2 GB DDR4 ECC RAM
- ✓ Fully Independent Safety Processor with own ECC Memory and Flash
- ✓ Power: 8-48V, single or dual inputs for enhanced safety
- ✓ Video Out: 2x HD-SDI out, up to 4K
- ✓ Video In: 4x HD-SDI in, up to 4K
- ✓ Certifiable Communications
  - ✓ up to 3x Gigabit Ethernet, can be configured as ARINC 664 Part 7
  - ✓ up to 4x ARINC 429 RX
  - ✓ up to 2x ARINC 429 TX
  - ✓ 15x Digital GPIO, incl. PWM
  - ✓ up to 15x Analog GPIO
  - ✓ up to 4x RS-485
  - ✓ 2x RS-422
  - ✓ 2x RS-323
  - ✓ 1x CAN
- ✓ DO-160G
  - ✓ Vibration: RTCA/DO-160G Section 8 Cat. U
  - ✓ Shock: RTCA/DO-160G Section 7 Cat. B
  - ✓ Temperature Range (Operational): -40 °C to 70 °C / -40 °F to 158 °F RTCA/DO-160G Section 4 Cat. A1
  - ✓ Temperature Range (Storage): -40 °C to 85 °C / -40 °F to 185 °F
  - ✓ Altitude: