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SolRack

the 19”rackmount
DO-178C/DO-254 certified DAL B computer for
Certified UAV ground stations and certified ground-training cockpits



Developing certified avionics systems has always been a difficult proposition with high development costs, project delays and associated risks on UAV aircraft design cycle. This has locked aircraft designers into non-certified solutions based on commercial unproven systems. (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 software platform and requires no 3rd party licenses. Sol Computer components are exempt from US government export control.

Product Description

SolRack is the high performance 19” rack mounted avionics computer with capabilities for multiple screens, high performance video processing, a large number of I/O and networking through avionics buses. SolRack is particularly well suited to ground control station /remote piloting of certified UAVs as it also provides non-certified USB inputs for standard computer peripherals.

SolRack comes fully integrated with its SolOS operating system and executable. Development licenses are available for our clients to customize SolRack 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

- ✓ Easy rack integration with standard 110-220V input for a certified computing system.
- ✓ Powerful processor with quad-core ARM Cortex A53 as main processor
- ✓ Independent safety processor
- ✓ Designed as a fully airborne rack computer with DO-254 certification
- ✓ Ability to drive 2 displays in parallel, with up to 4K resolution.
- ✓ Powerful graphics processing for remote cockpit and trainer applications
- ✓ Support for 4 channel video input with high-speed FPGA-based processing abilities
- ✓ Support for non-certified video into certified systems with picture-in-picture
- ✓ Support for avionics interfaces (e.g. ARINC-429) for certified trainer cockpit applications
- ✓ Support for standard IT interfaces, RJ-45 for Ethernet and USB for computer peripherals

Applications

- ✓ Certified UAV ground control stations
- ✓ Certified simulators for training cockpits
- ✓ Certified test systems
- ✓ Certified data center rack mounted data processing systems

Specifications

- ✓ 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: 110-220V
  - ✓ Single or dual power inputs for enhanced safety
- ✓ Video Out
  - ✓ 1x HDMI out
  - ✓ 1x HD-SDI out
- ✓ Video In
  - ✓ 4x HD-SDI in
- ✓ Certifiable Communications
  - ✓ up to 3x Ethernet, can be used as ARINC 664 Part 7
  - ✓ up to 4x ARINC 429 RX
  - ✓ up to 2x ARINC 429 TX
  - ✓ 15x Digital GPIO
  - ✓ up to 15x Analog GPIO
  - ✓ up to 4x RS-485
  - ✓ 2x RS-422
  - ✓ 2x RS-323
  - ✓ 1x CAN
- ✓ Non-certied Input Devices
  - ✓ 4x USB keyboard & pointing devices

Some pins have multiple functions. Ask information for which IO options can be combined.

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