JARVIS (Joint Avionics Reconfigurable Virtual Information System) is a FACE™ 3.0 conformant, Integrated Modular Avionics 2nd generation (IMA-2G) architecture-based mission computer that dynamically allocates application resources across four common, reconfigurable, encrypted and networked computing modules to reduce downtime, risk and maintenance costs.

HIGHLIGHTS

- Maximize system availability and prevent failure through common communication protocols and software interfaces that identify, prioritize, program, recover and dynamically distribute application resources across fault-tolerant computing modules
- Stock fewer spares and save maintenance, lifecycle and logistical costs with common, reusable JARVI computing modules that can function as standalone small form factor computers at O-level
- Accelerate applications with Quad A53 processors featuring neon and floating-point coprocessors, a safety-critical GPU with full Open GL SC 2.0 and Vulkan SC, and a dynamically reconfigurable FPGA with 1.3 million logic elements
- Mitigate risk and speed integration with a modular software architecture that delivers red/black and safety level separation while automatically networking with other JARVIS mission computers and JARVI modules
- Operate in demanding flight conditions and simplify system management with built-in health monitoring and a rugged, fault-tolerant design that operates in extreme temperatures. Self-testing JARVIS systems eliminate the need for automatic test equipment (ATE)
- Streamline safety certification and system integration with a ARINC 653-compliant RTOS, ARINC 661 model-based GUI, ARINC 664, AFDX secure communications and optional software development environment
TECHNICAL SPECIFICATIONS

The JARVIS configuration consists of up to 4 computing modules:

Each Computing Module (JARVI):
Certifiable up to DAL-A

Processor
Intel Stratix 10 System on Chip (SoC):
- Quad-core 64-bit ARM Cortex-A53, 1 GHz
- 850K to 3M logic elements in the FPGA
- 48x full duplex transceivers

Memory and Storage
8 GB DDR4 FPGA memory
8 GB DDR4 processor memory
768 MB NORflash

Integrated Ethernet Switching
Port configurable as AFDX or Ethernet

Integrated Graphics Processing Unit
AMD E9171 GPU
SDI and RS170 video capture to GPU memory
SDI and NTSC video output and overlay (symbology, PiP, etc.)

Video Capture and Switch
7x SDI and 4x RS-170 video capture to GPU memory
Software configurable video I/O: any video input can go to any video output

Flexible Avionics I/O

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<th>Interface</th>
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<td>RS-170/NTSC</td>
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Maintenance

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Maintenance and Diagnostics
Integrated built-in-test (BIT) capability
Internal health monitoring system

BuiltSAFE™ Proven Elements
DO-254 hardware
DO-178C graphics CoreAVI
OpenGLSC 2.0
Design and information assurance

Mechanical and Environmental
Dimensions
- ARINC 600 case size: 5 MCU
- 7.64” x 7.87” x 15.10”
- 194.06 mm x 199.89 mm x 383.54 mm
Weight: 28.42 lb (12.7 kg)
Airflow intake: 7.64 g/s @ ≤ 55°C
Module size/weight
Weight: 3.43 lb
Dimensions: 8.396” x 63.845” x 1.9”
213.26 x 176.86 x 48.13 mm

Rugged and Low Power
Supply voltage: 115VAC@400Hz
TDP: 220 W
DO-160 G
MIL-STD-810H
MIL-STD-1686C
MIL-STD-202H

Software Board Support Packages (BSP)
Integrity-178 TUMP BSP with drivers
Meets CAST-32A objectives
Meets CAST-29 objectives
Other operating systems available upon request: Linux, VxWorks, Deos, LynxOS, PikeOS
TECHNICAL SPECIFICATIONS

JARVIS Modular Design for O-Level Replacement

The JARVIS computing modules can be individually removed and replaced at O-level while the JARVIS mission computer remains in the platform. Each JARVI computing module can also function as a standalone, small form-factor computer.

JARVIS BLOCK DIAGRAM
TECHNICAL SPECIFICATIONS

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JARVIS Health Monitor and Management GUI