

# JARVIS

## Modular Mission Computer with BuiltSAFE™

Mitigate risk, lower costs and scale airborne applications with ease

- 0-level replaceable, common, reconfigurable, modules
- 4 ARM Cortex-A53 64-bit processors and 64 GB DDR4 memory
- NSA Type-1 and FIPS 140-2 encryption
- Certifiable up to DAL-A
- Rugged and fault tolerant
- Built-in networking, monitoring, management, diagnostics and test capabilities



**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 0-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

CONTACT US

**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 Coretx-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**

Interface	In	Out
<b>Mission</b>		
Discrete	22	8
RS-170/NTSC	7	2
SMPTE-292	7	10
ARINC-708	1	—
RS-422 full duplex	5	5
Ethernet/AFDX	9	9
MIL-STD 1553	4	4
<b>Maintenance</b>		
RS-232	4	4
Gigabit Ethernet	4	4
DVI	2	2

**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@400HGz

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

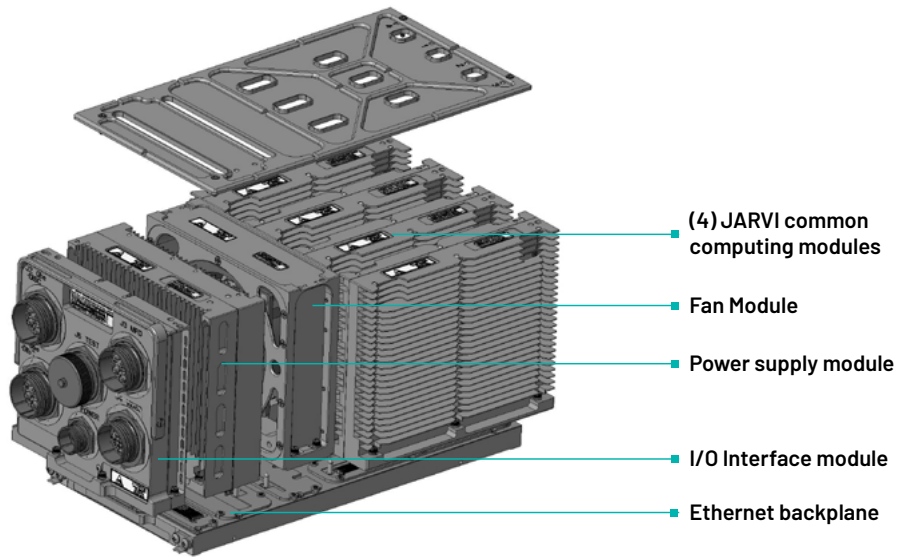
Meets CAST-29 objectives

Other operating systems available upon request: Linux, VxWorks, Deos, LynxOS, PikeOS

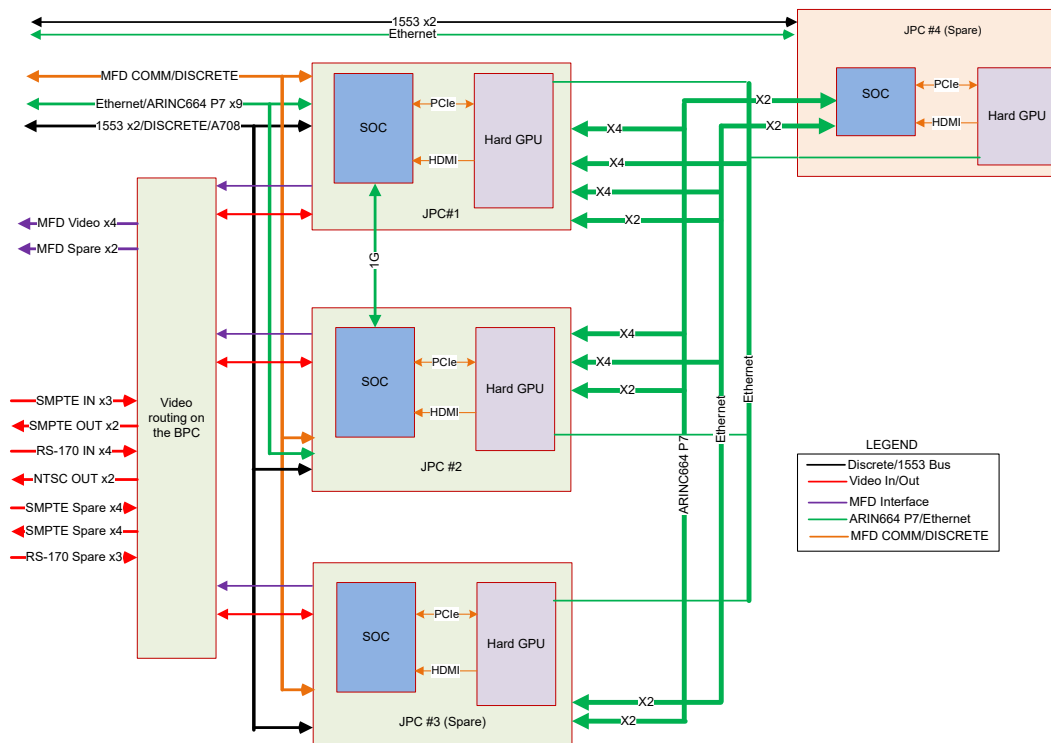
TECHNICAL SPECIFICATIONS

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 JARVIS computing module can also function as a standalone, small form-factor computer.



JARVIS BLOCK DIAGRAM

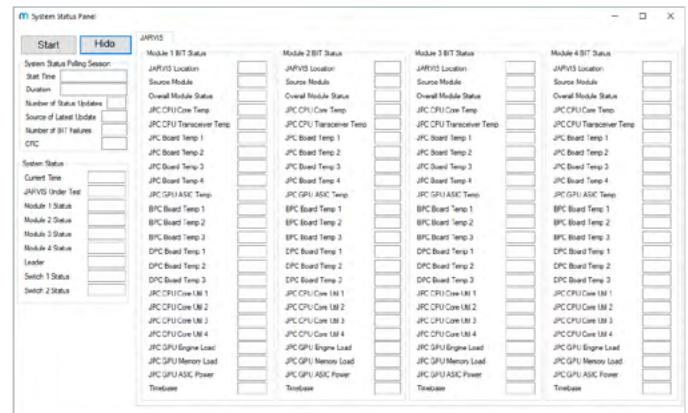
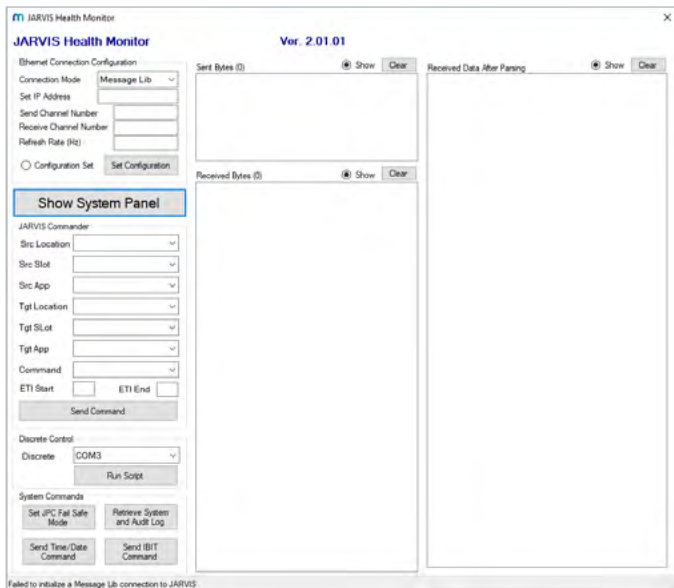


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JARVIS Health Monitor and Management GUI



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