

AEROSPACE CAPABILITIES

Safety-critical engineering for next-generation airborne systems

SYSTEMS | SOFTWARE | DIGITAL HARDWARE | VERIFICATION

ENGINEERING CONFIDENCE INTO EVERY MISSION

Bytecraft develops mission-critical and safety-critical software, electronic hardware and integrated system solutions for demanding airborne platforms. Our multidisciplinary teams support the complete engineering lifecycle, from architecture and requirements to implementation, integration, verification and certification support.

SAFETY-CRITICAL EMBEDDED SOFTWARE

- Bootloaders, BSPs and device drivers
- RTOS integration and real-time applications
- Low-level and airborne application software
- ARINC 653 partitioned software
- Mission planning and geospatial applications
- DO-178C lifecycle and certification support

AVIONICS SYSTEMS & PLATFORM SOFTWARE

- Flight control and vehicle management software
- Engine and propulsion control architectures
- Backup flight instrumentation
- Air-data and sensor-processing applications
- Avionics I/O management and data gateways
- Display computer and legacy retrofit software

OPEN ARCHITECTURE & FACE

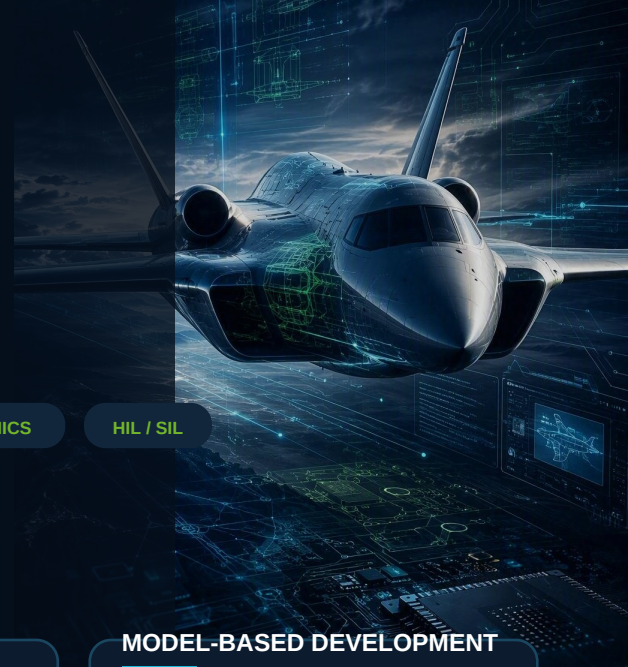
- FACE Computing Environment architecture
- TSS, IOSS and platform-specific services
- Portable and platform-common services
- Health Monitoring and Fault Management
- FACE data modelling and code generation
- Reusable software components and ARINC 653 adaptation

REAL-TIME PLATFORMS & MIDDLEWARE

- VxWorks 7 and VxWorks ARINC 653
- INTEGRITY and QNX
- BSP, driver and application integration
- DDS, gRPC, MQTT, RabbitMQ and Kafka
- Logging, configuration and observability services
- Standards-based, vendor-neutral integration

INTEGRATED SOFTWARE, HARDWARE & VERIFICATION

From virtual platforms to certifiable airborne electronics



DO-178C DAL A

DO-254

ARINC 653

ARINC 661

FACE

SIMICS

HIL / SIL

CERTIFIABLE DIGITAL HARDWARE

- FPGA and programmable logic design
- VHDL and Verilog development
- Reusable IP core development
- High-speed interfaces and DSP
- Simulation and hardware verification
- DO-254-oriented digital design

COCKPIT GRAPHICS

- Safety-critical 2D graphics
- OpenGL and Vulkan development
- ARINC 661 display architectures
- Pilot interface design workflows
- Display computer software
- FPGA-based graphics acceleration

MODEL-BASED DEVELOPMENT

- SCADE, MATLAB and Simulink
- Control-logic development
- Executable system models
- Model-based verification
- Requirements traceability support
- Test-vector and code-generation support

VIRTUAL PLATFORMS, SIMULATION & HIL

Bytecraft develops integrated validation environments that reduce physical hardware dependency and enable earlier, repeatable integration.

- Simics-based virtual platforms and custom board models
- Deterministic execution, snapshots and fault reproduction
- Software-in-the-loop and hardware-in-the-loop testing
- CI/CD-integrated build, flash, test, log and report flows

SYSTEM ENGINEERING & INTEGRATION

- Concept and architecture
- System requirements
- Preliminary and detailed design
- HW/SW integration
- Verification and validation
- Acceptance and commissioning
- Maintenance and sustainment

SELECTED AEROSPACE EXPERIENCE

Engineering, certification and verification support for national combat-aircraft and jet-trainer programmes; I/O module development for aerial-refuelling aircraft; avionics modernization; FACE 3.0 management-component software; and backup flight instrumentation software.

FROM REQUIREMENTS TO CERTIFICATION

Bytecraft combines aerospace domain knowledge, safety-critical engineering, open architectures, embedded software, digital hardware, simulation and verification to deliver integrated solutions for next-generation airborne platforms.

WE CRAFT TECHNOLOGY. WE ENGINEER MISSION CONFIDENCE.