MAX (Modular, Autonomous, eXtendible) Flight Software is a fully customizable flight software suite that provides the foundation for your complex space mission from day one.

REDUCE COST WITHOUT COMPROMISE

MATURE

150+
CUMULATIVE YEARS IN SPACE

VERSATILE

DESIGNED WITH ALL SPACECRAFT, OPERATING SYSTEMS AND PROCESSORS IN MIND

FLIGHT-PROVEN

50+
SUCCESSFUL MISSIONS

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C++ FRAMEWORK

Configurable C++ objects form the building blocks of MAX. A wide range of essential services compliment the object-oriented framework including:

- Time Management
  - Watchdogs
  - Event Reporting
- Fault Protection
  - Intelligent Sequencing
  - Autonomy
- Command and Telemetry
  - File Management
  - Hardware I/O

DESIGN

MAX has a common architecture for reusability and algorithm applicability so you can meet your budget, timeline, and focus on the unique aspects of your current mission.

COMPATIBLE HARDWARE & OS

OS: VxWorks (5.x to 7.x) | Linux (several versions) | RTEMS | FreeRTOS | Windows 7, 8 and 10

Processors (Partial List): PPC G4 | PPC 750 | PPC 440 | Freescale 8548
LEON3 UT700 | LEON3 GR712RC | Intel x86 | ARM Cortex A7, A8 and A9 (including Xilinx Zynq)
  - 8-Core ARM v8.2 64-bit
  - 512-core Volta

MAX HERITAGE

- AFRL/USAFA selects MAX for the FalconSat program (2008)
- SOLIS Simulation with MAX debuts within STK (2011)
- ORBCOMM Launch with ASI FSW/Odyssey 11 Gen 2 Satellites Launched (December 2015)
- USAF STPSat-5 Astro Digital CORVUS BC-4 Astrodigital Comm Spacecraft Commercial Imaging Spacecraft (December 2018)
- First MAX Satellite to Launch on Electron Rocket (July 2018)
- USAF FalconSat-6
- ORBCOMM Launch with ASI FSW/Odyssey 6 Gen 2 Satellites Launched (July 2016)
- CORVUS BC-3 (January 2018)
- MAX goes international with EAR 9D515 Designation (2019)
- SOLIS Simulation with MAX debuts within STK (2011)
- TacSat-2 Launch with ASI ADCS FSW/Odyssey (2007)
- USAF Launch FalconSat-5 (November 2010)
- Astro Digital Launch CORVUS BC-3 (January 2018)
- First MAX Satellite to Launch on Electron Rocket (July 2018)
- AstroDigital Launch MX-1 (July 2019)
GNC CAPABILITY

MAX contains proven flight and simulation configurable components for:

GUIDANCE
- Pointing & Slewing
- Targeting & Scanning
- DeltaV Engines
- Rendezvous & ProxOps
- Orbit Propagation

NAVIGATION
- Attitude Determination
- Orbit Determination
- GPS Rcvs & IMUs
- Magnetometers & Sun Sensors
- Star Trackers

CONTROLS
- Attitude Control
- Momentum Control
- Magnetic Torquers
- Reaction Wheels
- Thrusters & Tanks

DevTool
BUILD CUSTOM COMPONENTS
Rapidly auto-generate custom C++ software via Intelligent XML Schema

Odyssey
ONBOARD DYNAMIC SIMULATION SYSTEM
Closed-loop simulation of the spacecraft portable for both design and test

Sequencer
POWERFUL SEQUENCE ENGINE
Autonomous Operations
CONOPs Development
Configurable Fault Protection

Commercial Imaging Spacecraft Launched (August 2019)
2 Commercial Imaging Spacecraft Launched (August 2020)
Commercial Imaging Spacecraft Launched (March 2021)
MAX Autonomy Debuts Mission Ops Center Operational (June 2021)
2 Commercial Imaging Spacecraft Launched (December 2021)

USAFA FalconSat-8
Boeing ART-2
Astro Digital Palisade (May 2020)
DARPA Launch Mandrake-1 (November 2020)
DARPA Mandrake-2, Able & Baker
Commercial Tech Demo Spacecraft
Astro Digital Shasta & Tenzing
Commercial Hosted Payload Spacecraft Spacelift Shara LTE-1 (June 2021)
Commercial Imaging Spacecraft Launched (November 2021)
First Interplanetary Mission (2022)
SOLIS is a spacecraft simulation tool within STK to configure and analyze spacecraft and mission ConOps powered by MAX and ODySSy.

MAX GDS provides rapid integration of the ground software segment to operate spacecraft, testbeds, and simulations.

SOLIS configures MAX and ODySSy to model & analyze within the STK mission environment.

Flight and simulation software is rapidly designed with DevTool.

MAX GDS and FlightJAS Sequencer enable command & operation with rich visualizations.

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