Versatile Network Switching

Network Configuration and Analysis Tools

Our next generation, state-of-the-art, configuration and analysis tools designed for safety critical applications when determinism matters.

Flexible Network Configurations

- Configure GE's Versatile Network Switches that provide a superset of switch functionality for the widest possible range of customer applications
- Configure GE's VCompute and I/O Ethernet Network Interfaces
- Deterministic or non-deterministic network protocols
- Ethernet ports configurable to bandwidth needs

Support for Industry Standards

- IEEE 802.3 Standard for Ethernet
- AFDX®/ARINC 664P7 Deterministic Ethernet
- IEEE 802.1 Time Sensitive Network (TSN)

Purpose built for Safety-Critical Applications

- DO-330 Qualified for system certification to Design Assurance Level (DAL) A for DO-178C
- Proven usage on multiple, in-service commercial aircraft
- Readily schedule and configure large networks
- Generate A665-3 compliant, field loadable configuration

Flexible Integration

- Integrate into your custom Model Based System Engineering (MBSE) toolchain and leverage GEAS's Open Systems Toolset
- Use zero-install, secure cloud deployments or on-premise operating environments
- Kickstarter guides and detailed manuals to aide integrations

geaviation.com

Tool Editions

Basic	**Advanced**	**TSN**
• Configure Physical Port features such a speed, auto-negotiation, and duplex • Configure VLANs with rate-based policing • Configure health monitoring messaging • Companion to TTTech® Workbench for TTE networks • XML based configuration input format • Load devices via standard, 3rd party ARINC 615A dataloaders	Includes all the features of the Basic edition, with the added ability to: • High performance and intuitive User Interface with Graphical, Grid, and Chart based views • Configure and schedule networks that mix Best Effort, A664 VLs, and deterministic IP streams across switches and end systems. • Analyze determinism, latency, jitter, bandwidth, etc. • Load devices via standard, 3rd party ARINC 615A dataloaders	Includes all the features of the Basic edition, with the added ability to: • High performance and intuitive User Interface with Graphical, Grid, and Chart based views • Configure and schedule networks that mix best effort traffic with shaped IEEE 802.1 Qav and Qbv streams across switches and end stations. • Analyze determinism, latency, jitter, bandwidth, etc. • Load configurations via various means including standard NETCONF/YANG data models
See Chronos Basic Edition Product Datasheet for more details.	*See Chronos Advanced Edition Product Datasheet for more details.*	*See Chronos TSN Edition Product Datasheet for more details.*

Feature / Edition Matrix

Features	***Chronos Basic***	***Chronos Advanced***	***Chronos TSN***
Configure Physical Port features	*Y*	*Y*	*Y*
Configure VLANs with rate-based policing	*Y*	*Y*	*Y*
Configure health monitoring messaging	*Y*	*Y*	*Y*
Companion to TTTech® Workbench for TTE networks	*Y*	*Y*	*Y*
XML based configuration input format	*Y*	*Y*	*Y*
Load devices via ARINC 615A dataloaders	*Y*	*Y*	*Y*
DO-330 Qualification Kits Available	*Y*	*Y*	*Y*
High performance and intuitive User Interface with Graphical, Grid, and Chart based views		*Y*	*Y*
Configure and schedule AFDX ®/ARINC 664 GEAS switches and end systems		*Y*	
Configure and schedule deterministic IPv4 flows for GEAS switches		*Y*	*Y*
Configure and schedule IEEE 802.1 Qav and Qbv streams for NETCONF/YANG compatible devices supporting but not limited to: *IEEE Std 802.1AS Time Synchronization* *IEEE Std 802.1Qbv Time Aware Scheduling* *IEEE Std 802.1CB Frame Replication & Elimination* *IEEE Std 802.1Qci Ingress Policing* *IEEE Std 802.1Qav Forwarding and Queuing Enhancements* *IEEE Std 802.1Qbu Frame preemption* *IEEE Std 802.1Qca Path Control* *IEEE Std 802.1Qcc Stream Reservation* *IEEE Std 802.1Qcp Base yang data models* *IEEE Std 802.1Qcw Yang data models for config*			*Y*
Mix Best Effort traffic with deterministic traffic		*Y*	*Y*
Analyze determinism, latency, jitter, and bandwidth		*Y*	*Y*

Tool Build Services

Dataload Support Tools	• ARINC 665-3 Load Software Airplane Parts (LSAP) is the standardized packaging format used for field loadable software and configuration updates of avionic devices. • These flexible tools allow customers to generate LSAPs for GEAS devices as well as any ARINC 665-3 compatible devices • Qualification per DO-330/DO-178B
On-Premises Automated Build Service	• For those engineering team directly using the XML-based configuration format, use this service to create a centralized web portal for automating building, tracking build history and logs, archiving build artifacts. • Based on the mature, flexible, open-source Jenkins CD/CI software the service can be integrated with your team's version control system to automatically start builds when changes are committed
Beyond Compare DO-330 Qual Kit	• Beyond Compare by Scooter Software is popular tool used by engineering teams to perform unofficial difference analysis of text-based files. • This DO-330 Qualification Kit turns Beyond Compare into a DO-330 TQL-5 Qualified Verification Tool thereby eliminating the need to perform additional, manual reviews and directly use its outputs as part of the official difference analysis
NUnit **DO-330 Qual Kit**	• NUnit popular .NET test framework used by engineering teams to perform unofficial testing of software and tools written for the .NET platform. • This DO-330 Qualification Kit turns Nunit into a DO-330 TQL-5 Qualified Verification Tool thereby eliminating the need to perform additional, manual reviews and directly use its outputs as part of the software or tool's official verification activities.

Travis Kissane
travis.kissane@ge.com
GE Aviation
3290 Patterson Ave. SE
Grand Rapids, MI 49512
616-401-7521
www.geaviation.com