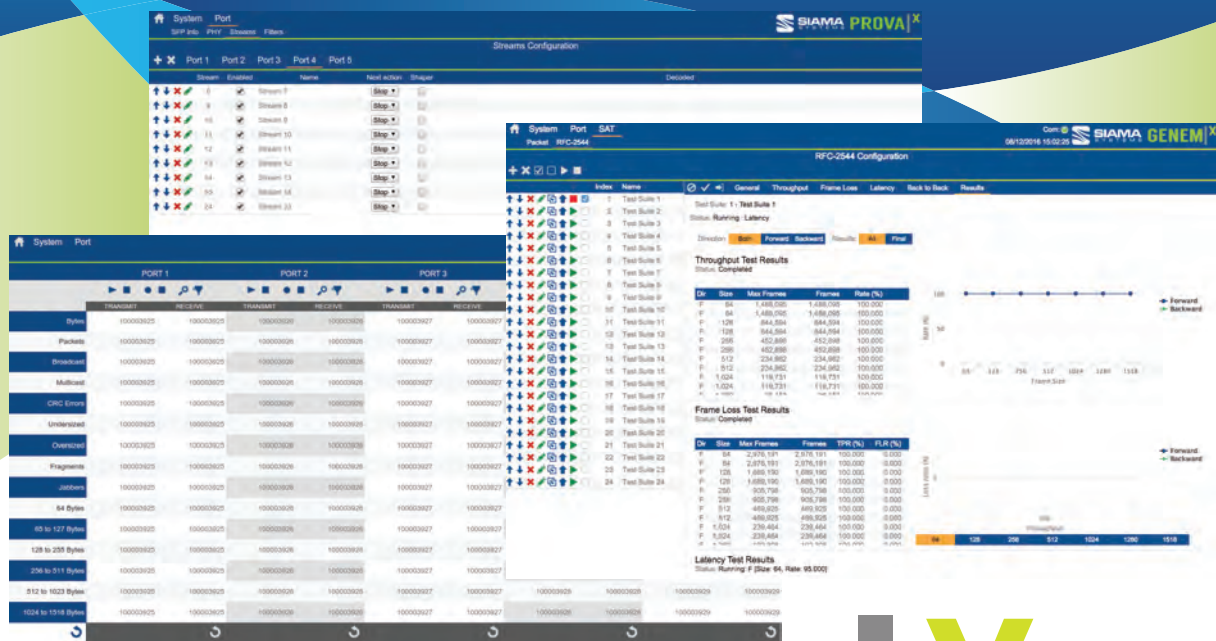


SOFTWARE APPLICATION DATA SHEET



GENEM-X is a feature-rich Ethernet and IP traffic generator, capture, playback and impairment application that runs on the PROVA-X test appliance. GENEM-X allows networking equipment manufacturers and service providers to stress-test networking appliances, infrastructure or Virtual Network Functions (VNFs) in a lab or production environment. GENEM-X can emulate network traffic by generating packets up to line-rate on each of the PROVA-X test interfaces while simultaneously filtering and capturing flows for analysis. It can be used for Service Assurance in production environments, on-demand troubleshooting and SLA reporting. The network emulation features allow you to add delay, jitter and loss to flows to emulate complex networks and track application performance. GENEM-X transforms the PROVA-X into the ultimate multi-tool test appliance.



GENEM X

Release 1.3

Layer 2-3 Network Infrastructure Testing

Key Features:

- Stateless Ethernet & IP Traffic Generation
- Packet Capture and PCAP Replay
- Network Emulation and Impairment
- Per-flow Performance Monitoring
- Service Activation Testing & Reporting
- LACP Support to Test Active/Standby LAG
- Multi-flow traffic generation, with multiple streams per flow
- RFC 2544 Benchmarking Methodology
- Powerful Micro-Scan™ Engines for packet inspection
- Per-flow packet statistics and performance measures
- Modify received packets based on filters and predefined actions
- Capture & export traffic in PCAP format
- Instant test profile configuration
- Impair flows by adding delay, jitter and loss to verify your applications
- Intuitive graphical user interface
- 40Gbps of test capacity - 5G Ready!

Traffic Generation Features:

- Wire-rate synthetic Ethernet and IP traffic generation on all four 10G ports simultaneously
- Four test ports configurable from 10Mbps to 10Gbps (on the fly)
- Configure any Layer 2, 3, 4 protocol headers, including IEEE 802.1 (C-Tag, S-Tag, I-Tag, B-Tag), MPLS labels, IPv4, IPv6, UDP, TCP, etc.
- Generate ARP Requests and Responses, ICMP neighbor discovery messages
- Ultra-precise nanosecond stream rate control
- Create a flow with multiple protocol streams to emulate complex traffic patterns
- Multiplex multiple flows for transmission out a test port with priority scheduling

Traffic Analysis Features:

- Wire-rate traffic filtering and analysis on all four 10G ports simultaneously
- Micro-Scan™ Engines filter and forward flows to analysis, modification, capture, impairment or physical port entities for ultimate flexibility
- Ultra-accurate packet delay and delay variation measurements
- Per-flow statistics plotted in real-time

Capture & Playback Features:

- 8GB onboard capture memory can be segmented into individual buffers by the user
- Full or partial capture of frames
- Export captures in PCAP format for decode in Wireshark™
- Import PCAP files and play them back at the original rate or at line-rate to recreate events and stress test applications

Network Emulation Features:

- Add delay, jitter and loss to flows to emulate real network conditions
- Over 6 seconds of delay can be introduced to flows at 10Gbps line-rate
- Configure latency/jitter distribution for a test
- Select between Uniform, Normal, Exponential and Gamma distribution functions
- User-defined delay distribution parameters for maximum control
- Impairment entities add periodic or pseudo-random loss to flows that can be averaged over user-configurable burst sizes

Test Ports:

- 10M, 100M, 1G, 2.5G, 5G, 10G support
- NBASE-T / IEEE 802.3bz support
- All test ports are fully independent and configurable
- Port statistics include a set of Sent/Receive counters for the following: bytes, packets, broadcast, multicast, CRC errors, undersized, oversized, fragments, jabbers, and RMON Group 1
- Loopback packets received at test ports or send them to the capture buffer

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