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Xgig® 16 G Fibre Channel Generator

Generates Fibre Channel Traffic to 16 G

Overview

Increased demand for storage network bandwidth is driving the Fibre Channel (FC) industry to quickly advance toward doubling the currently supported speed. Starting from 1 G, FC technology has already doubled its supported speeds with similar framework and data structure. Functional verification and protocol compliance tests can be correlated among various data speeds up to 8 G. However, for designers jumping between 8 G FC and 16 G FC poses a greater technological difference than expected and, therefore, require fundamental protocol-based tests at the 16 G speed.

Conducting detailed all-layer tests requires a 16 G FC generator. The new Xgig 16 G FC Generator function on the 16 G FC multifunctional blade for the Xgig 5000 platform offers similar client management as other Xgig functions, with the exception of the analyzer which has a separate client interface. The 16 G FC Generator connects to users' systems and can arbitrarily create FC protocol traffic at speed of 4, 8, or 16 G FC, to emulate FC devices. In addition, the 16 G FC Generator can be used to replay field issues in the lab to verify bug fixes in the SQA lab before they are deployed. For optimal usability, users control the generator through an application-programming interface (API). The Xgig 16 G FC Generator can help companies accelerate turn-up, regression and manufacturing testing, and field support, among other applications.

Key Benefits

- Enables thorough verification of Fibre Channel functionality and testing for protocol compliance
- Complete API library facilitates test automation
- Flexible configurations to generate fully customized protocols

Key Features

- Generates FC and SCSI FCP protocol traffic
- Operates at speeds of 4, 8, and 16 G
- Emulates initiator and target behaviors
- Supports N_port, F_port, or E_port emulation
- Controlled through C/C++ API-based scripts
- Supports up to 1024 event queues
- Supports fully customized frames, ordered sets, primitives, and fill word generation
- Supports automatic or manual control flow management

Data Sheet

Operation Mode—Compiled Testing Mode

The Xgig 16 G FC Generator function, available on Xgig 5000 16 G FC multifunctional blade, can be controlled using a compiled C++-based API, empowering users to construct any FC traffic, exchange sequences, and response logic. Users can create extensive test scenarios by controlling Generator TX for transmitting frames, setting the order and even inter-frame gap (IFG), and retrieving the traffic from Generator RX. They can establish the exchange sequence by defining the correlation between TX and RX using "C Programming" logic.

In addition to the full customization option, the function provides automatic FC link initialization and buffer-to-buffer credit (BBC) management. Leveraging these built-in processes, users can focus on constructing compliant FC traffic without worrying about rudimentary link activations, link maintenance, and traffic flow management.

Unique Capabilities

Programming empowers the 16 G FC Generator with:

- FC port emulation — This function can emulate N_Port, F_Port, and E_Port.

- Enables FC initiator and target emulation by constructing FC traffic — The generator port can connect directly to either initiator or target devices under test (DUTs) to conduct stateful SCSI exchanges and to manage extended link services. The C Programming script logic enables the generator to conditionally respond to inbound frames or data patterns and is the basis for creating transaction/exchange-level responses.

- Custom frames, ordered sets, and primitive construction — This function lets users configure either compliant or noncompliant data structures for proprietary tests.

- Supports both automatic and manual BBC management — A setup trigger mechanism (3 levels, logic, and counters) to switch generator-managed BBC to a fully user-controlled mode.

- Supports DWORDs event transmission — In addition to defining and configuring frames/ordered sets/primitives sequences to transmit, another generator option lets users directly define DWORD sequences. This mode lets users configure frames and ordered sets and primitives as well as configure fill words.

- Supports event queue — The generator supports up to 1024 event queues on transmission and allows continuous appending of frames/ordered sets/primitives to the end of the queue.

- Event logging — A log file is automatically crated to report the status of each API action. During a failure, the log file records the error types, such as parameter errors, API errors, or internal errors.

The generator builds upon the proven Xgig platform with its flexible chassis-and-blade hardware architecture that supports multiple protocols. With this architecture and the Viavi Solutions 16 G 4-port Fibre Channel multifunction blade, the generator can create and emulate bidirectional FC traffic. Using the multifunction capabilities of the Xgig, users can configure the generator functions to meet other supported Xgig Fibre Channel functions, such as analyzer, jammer, or load tester, by simply toggling software switches. Xgig also gives users flexibility through either port synchronization or support for many users. The Xgig platform's cascade function can cascade multiple Xgig chassis together to form a "sync group" that provide anywhere from 1 to 32 synchronized generator ports. In noncascaded scenarios, Xgig can support a maximum of 32 simultaneous users.
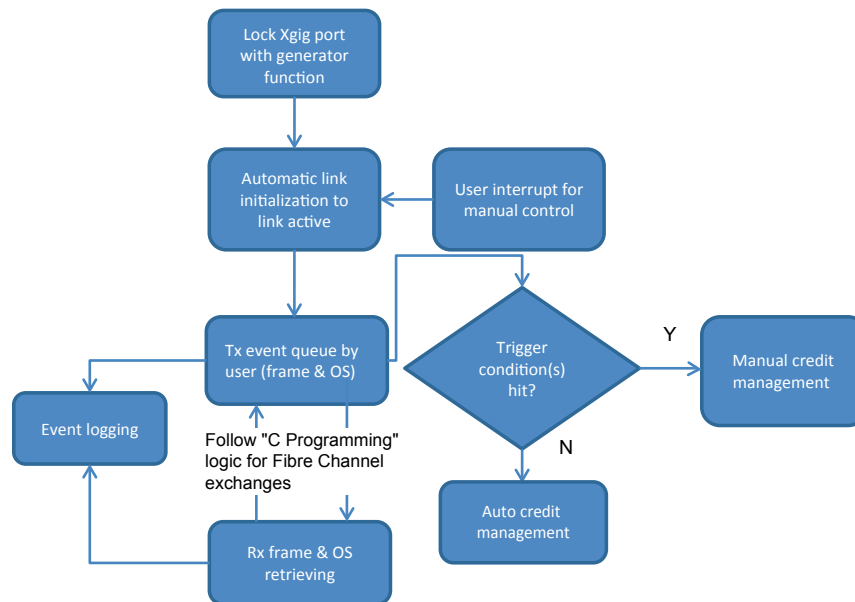

Figure 1. The operation architecture

Scripting Services

Xgig 16 G FC Generator is fully controlled and managed using API scripts. To facilitate the use of this function and fully automate the tests, Viavi offers a custom-scripting service through its Viavi Medusa Labs testing lab and training center that also offers a wide range of products and services. Specializing in providing industry-leading testing services, the lab experts will meet all of your test and scripting needs.

1. Contracting the scripting service includes these steps:

2. Interview customers to understand the test environment and test case

3. Propose a scope of work

4. Sign off on the service contract upon agreement of proposal

5. Deliver the script code in .exe format

6. The customer tests, verifies, and accepts the delivery

Ordering Information

Part Numbers	Description
Xgig5k-1601-GR	1-port 16 G FC Generator Function Key

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