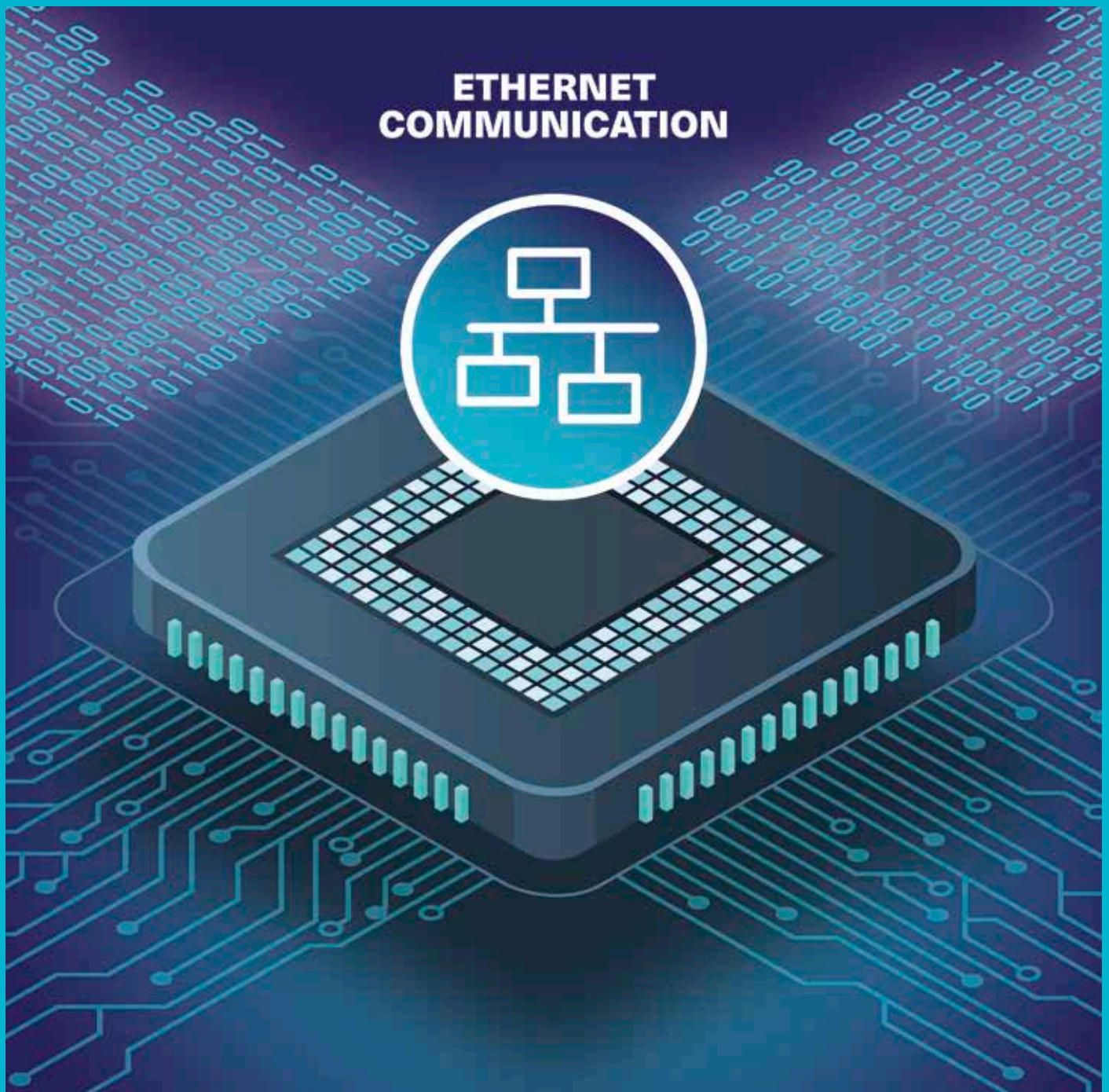


SocTek[®] IP Cores



Networking Testbench Suite

NTS

Overview

NTS is a combination of tools that allows the user to execute automatically a bunch of VHDL testbenches (system-level simulation) for an IP Core networking DUT (Device Under Test). Each testbench generates automatically the stimuli for testing a specific feature of the device.

In addition, testbenches also have the ability of analysing the results provided by the device in order to determine if these results are correct or not. This tool is executed by running a script, which automatically starts

and finishes each testbench and logs test results in a log file.

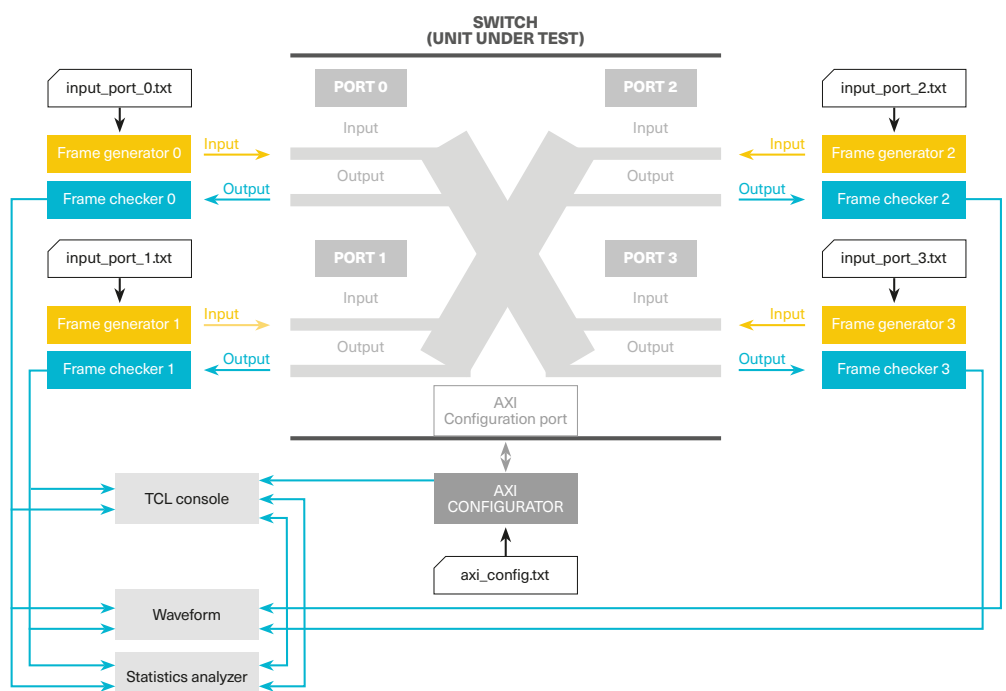
In order to achieve this, NTS architecture consists of a series of RTL blocks (traffic generator, traffic checker, AXI configurator, test configurator, etc...).

It is specifically designed to be used as a complement of SOC-E Ethernet networking IP Cores and sold as an optional package. This product is not meant to be sold separately.

Key Features

- Pre-defined test plan available: Hundreds of test cases available that serve to simulate multiple behaviours & traffic scenarios of SOC-E networking IP Cores, including Time-Sensitive Networking.
- User-defined tests: By modifying the configuration packages it is possible to apply different configurations into SOC-E IP Cores as well as modify the stimulus, leading to new, customised test cases.
- Source code available: Allowing to modify the RTL and adapt the existing testbenches for cases where configuration changes are not enough.
- Extended tool compatibility: NTS is designed to be compatible with any standard tool that support hardware description languages such as VHDL or Verilog. AMD Vivado™ Design Suite and Aldec Riviera-PRO™ are internally verified to be compatible with NTS and the provided scripts.
- Automated & pipelined test execution: save hours of simulation test execution by running scripting based test in background, allowing to run hours of high performance simulations without any human interaction.

GUI Block Diagram



Technical Specifications

Key Components

- Traffic generation: frame generator injects traffic to the UUT according to the input files
- Traffic checker: it is the module that analyses the traffic egressed by the UUT, including different fields of ethernet frame and autogenerated payload in order to extract statistics and detect the existence of errors
- AXI configuration: this module allows to configure UUT registers through its AXI4-Lite interface according to the input files
- Test configuration: this module allows to modify constants defined in the configuration packages
- Port configuration package: defines the number of ports and their interfaces (gmii, sgmmii, AXI-Stream, etc...)
- Simulation configuration package: defines traffic characteristics (number of frames, size, MAC addresses, etc...)
- Extended ports configuration package: this file is an extension of the previous one, whenever the number of ports is above the default one (above 4 ports)
- Statistics Analyser: this module allows to check automatically if the value of different statistic counters is correct according to the values specified in the golden file

Compatibility

- NTS is compatible with the following SOC-E IP Core list:
 - HSR/PRP Switch (HPS) IP Core
 - Managed Ethernet Switch (MES) IP Core
 - Managed Redundant Switch (MRS) IP Core
 - Multiport TSN Switch (MTSN) IP Core
 - Ten Gigabit Ethernet Switch (TGES) IP Core
 - TSN Endpoint (ETSN) IP core

Technical Support, Verification & Deliverables

Technical Support

IP Licenses are provided along with a technical support package that ensures a direct communication channel with our

highly experienced support engineers. This is vastly valued during customer product development & integration phases.

Verification

All our IP Cores are rigorously tested, hardware-validated and verified in real-life environments. A 3-phase based IP product verification is applied:

- Entity / Block-oriented simulation
- Global-oriented simulation
- In-hardware validation

Deliverables

- Encrypted / Source RTL code
- Documentation:
 - NTS user guide
- Simulation test plan (according to the specific compatible SOC-E IP Core license purchased)

Related Products

- HSR/PRP Switch (HPS) IP Core
- Managed Ethernet Switch (MES) IP Core
- Managed Redundant Switch (MRS) IP Core
- Multiport TSN Switch (MTSN) IP Core
- Ten Gigabit Ethernet Switch (TGES) IP Core
- TSN Endpoint (ETSN) IP core

Ordering Code

Ordering code

S-3138 (NTS)

To know more about other available references, please contact your sales representative.

SocTek[®] By

NTS

Networking Testbench Suite

SOC[®]E

www.soc-e.com
info@soc-e.com

Calle Islas Canarias 19, piso -1
48015 Bilbao (Spain)