REDEFINING RANDOMNESS

QUANTIS

WHEN RANDOM NUMBERS CANNOT BE LEFT TO CHANCE

TRUE RANDOM NUMBER GENERATOR

Although random numbers are required in many applications, their generation is often overlooked. As computers are deterministic, they are not capable of producing truly random numbers. A physical source of randomness is required and since quantum physics is intrinsically random, it is natural to exploit it for this purpose.

Quantis is a physical random number generator exploiting an elementary quantum optics process. Photons - light particles - are sent one by one onto a semi-transparent mirror and detected. The exclusive events (reflection - transmission) are associated to « 0 » - « 1 » bit values.

Quantum random number generators have the advantage over conventional randomness sources of being invulnerable to environmental perturbations and of allowing live status verification. The operation of Quantis is continuously monitored and if a failure is detected the random bit stream is immediately disabled. In addition, Quantis provides full entropy (randomness) instantaneously from the very first photon (bit).

Quantis is available as a USB device and integrates easily in existing applications. It is compatible with the most commonly used operating systems. A library which allows easy access and a demonstration application are provided.

The breadth of application is maximized by the advanced functionalities such as scaling and randomness extraction implemented in the Quantis software package.

Quantis USB

APPLICATIONS

- Cryptography
- Lotteries, Online Gaming
- PIN number generation
- Numerical simulations
- Statistical research
- Mobile prepaid system
- Secure printing

MAIN FEATURES

- True quantum randomness
- Most certified quantum RNG
- High bit rate up to 4 Mbits/s
- Randomness extraction capability
- Continuous status check
- Low cost
- Compact and reliable
- Easy integration in applications
- Instantaneous entropy

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QUANTIS USB

Quantis-USB-4M

GENERAL SPECIFICATIONS

1: Hardware bit rate prior to randomness extraction

Random bit rate[1]	4 Mbit/s ± 10% (Quantis-USB-4M)
Thermal noise contribution	< 1% (Fraction of random bits arising from thermal noise)
Storage temperature	- 25 to + 85°C
Dimensions	61 mm x 31 mm x 114 mm
USB specification	2.0
Requirement	PC with available USB connector
Power	Via USB port

QUANTIS Certifications

The simplicity of Quantis is also its strength. As the underlying quantum mechanical processes are well understood and easily characterized, it is relatively easy to certify the Quantis products.

Quantis is the most certified true RNG in the market. It has successfully passed the following certifications or government validations:

- NIST SP800-22 Test Suite Compliance
- METAS Certification
- CTL Certification
- Several iTech Labs individual Certificates
- Compliance with the BSI's AIS31 standard (dedicated version of Quantis)

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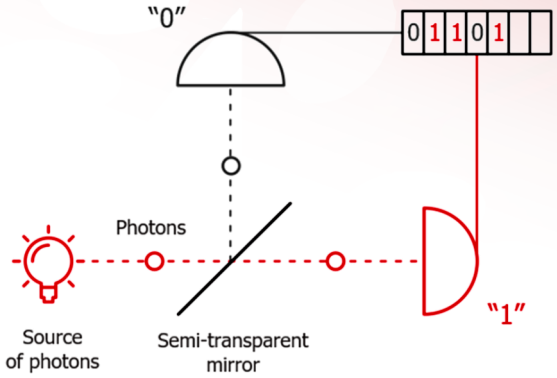
QUANTIS Principle

Based on Quantum Physics :

Photons - light particles - are sent one by one onto a semi-transparent mirror and detected. The exclusive events (reflection - transmission) are associated to « 0 » - « 1 » bit values.



QUANTIS Software

SUPPORTED OPERATING SYSTEMS

Quantis software (drivers, Quantis library and application) available for the following operating systems :

Package version	v18.3.8	v20.2.3
Supported OS		
Windows Vista (32-, 64-bit)	yes	no
Windows Server 2008 (32-, 64-bit)	yes	no
Windows Server 2012 (32-, 64-bit)	yes	no
Windows Server 2016 (32-, 64-bit)	yes	no
Windows 7 (32-, 64-bit)	yes	no
Windows 8 (32-, 64-bit)	yes	no
Windows 10	no	yes
FreeBSD	yes	no
Mac OS X*	yes	no
Solaris / OpenSolaris	yes	no
Linux 2.6 / 3.x / 4.0 -> 4.15	yes	no
Ubuntu 18.04 (Linux kernel <= 4.15	no	yes
CentOS 7	no	yes

*Note: MAC OS X only available with Quantis USB

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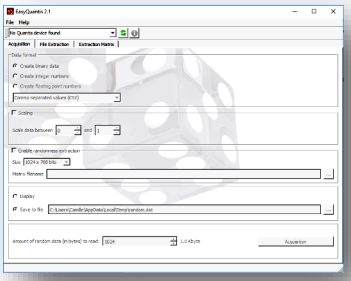
QUANTIS Software

EasyQuantis APPLICATION



Quantis comes with a useful cross operating system application called EasyQuantis allowing to read random numbers, which can be stored in a file or displayed.

Random number can be generated in the following formats :

- Binary
- Integers
- Floating point

The application includes advanced functionalities such as scaling or randomness extraction and can be used to access multiple Quantis generators.

A Command Line Interface can also be used to access Quantis and integrate EasyQuantis in scripts.

QUANTIS LIBRARIES

The Quantis library can be used to access the Quantis QRNG. The library API is identical for the PCIe and USB library and is available on all supported operating systems.

The library enables the production of random binary data, integers and floating point numbers. It can be used to access multiple Quantis generators and includes advanced functionalities such as random data scaling.

The QuantisExtensions library implements a randomness extractor which can be used to postprocess the output of the Quantis QRNG.

LIBRARY WRAPPERS

Wrappers, allowing to access the Quantis library as well as sample source code, are provided for the following programming languages :

- C++
- Java
- C#
- VB.NET

Quantis also supports the standard C++11 random device API.

ORDERING INFORMATION

■ Quantis-USB-4M	USB device with 1 module generating a random bit stream of 4 Mbits/s

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