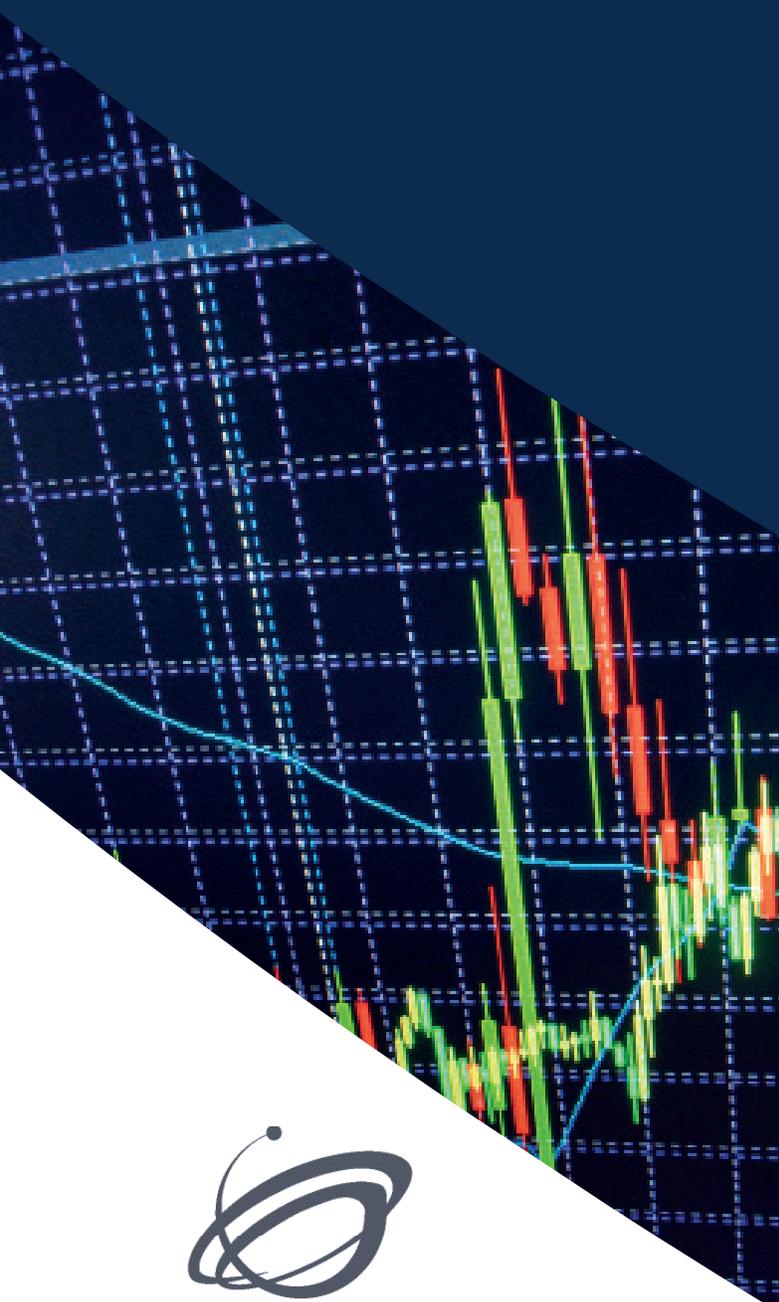Data Acquisition
Development Tools

DAQ Series™

vadatech
THE POWER OF VISION

Select the hardware...

VadaTech offers Analog to Digital Converters (ADC) and Digital to Analog Converters (DAC) for the right solution in terms of density and sampling speed. Using the ADC and DAC performances as a starting point for their architecture, our customers select the adapted data processing power within our large choice of FPGA and CPU.

...to integrate your application with existing tools from leading silicon suppliers and computing software developers:

Silicon suppliers and developers of mathematical computing softwares provide adapted solutions for the engineering teams, researchers and integrators to simulate and implement functions and algorithms faster.

VadaTech DAQ Series™ is an abstract layer providing access to the hardware from these existing software tools:

- System Generator for DSP™ is the industry's leading high-level tool for designing high-performance DSP systems using Xilinx All Programmable devices.
- Simulink from MathWorks® provides a graphical editor, customizable block libraries, and solvers for modelling and simulating dynamic systems. It is integrated with MATLAB®, enabling you to incorporate MATLAB® algorithms into models and export simulation results to MATLAB for further analysis.
- Qt is the software development framework of choice by engineers in over 70 industries worldwide for creating, building and deploying millions of connected embedded devices and applications.
- EPICS is a set of Open Source software tools, libraries and applications developed collaboratively and used worldwide to create distributed soft real-time control systems for scientific instruments such as a particle accelerators, telescopes and other large scientific experiments.

From sub-MHz to above 50GHz sampling speed

VadaTech is a world leader in the design and manufacture of embedded computing solutions. VadaTech has one of the most extensive portfolios of A/D and D/A converters in the industry, in a range of form factors and a variety of channel and sampling rate options to meet all your data acquisition needs. Our ADC and DAC are widely used in high energy physics, military, aerospace and industrial applications thanks to variants based on MicroTCA.4, MicroTCA.0, MicroTCA.1, FMC, VME/VPX and AdvancedTCA (ATCA).

With the VadaTech DAQ Series™, the ADC and DAC directly interface with the FPGA of your choice for initial data processing and/or transfer to another interface of the FPGA such as the on-board memory and the host CPU memory.

Simulate your model and build your IP with Simulink
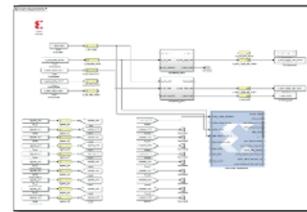
VadaTech DAQ Series™ includes a Simulink block in the FPGA providing direct capabilities for building your model, simulating your model and analysing the simulation result.

Load your IP in your Vivado FPGA project faster than traditional VHDL and Verilog coding
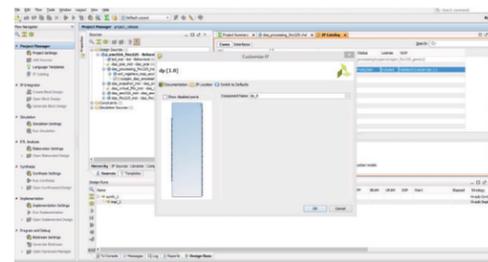
VadaTech DAQ Series™ is available with Xilinx FPGA. Xilinx FPGA Vivado is the foundation is the foundation for integrated development stack with standard AXI interface, IP Integrator and IP Packager.

Open Source

VadaTech DAQ Series™ full source code is provided for the libraries, sequencer, DMA, Linux driver and GUI, allowing users to easily customize or brand to their own requirements.

A standard "client-server" architecture

After the preliminary processing of the data in the FPGA the data are transferred to the host processor memory.
This host processor provides two distinct functions:

- Configuration and control of the acquisition
- Access to the data in the host memory and real time data display

These two functions can also be controlled via a Graphical User Interface which can be launched from any processor client connected to the host via the network running Windows OS.

Control and Configure the acquisition

The client GUI is a graphical interface providing every function available in the host processor including:

- Selection of the ADC and DAC hardware interface such as trigger and clock reference source
- Interface with Simulink parameters created in FPGA IP blocks with read/write functions to up to 65,000 registers.
- Start/Stop/Duration/Type of the acquisition

Real time display of the data and system status

DAQ Series™ provides real time access to the critical data necessary for the development of your acquisition system including:

- DMA data transfer speed (above 3.3GB/s with PCIe Gen3 x4 link between FPGA and host)
- Memory buffer occupancy (displayed in % of memory size)
- Clocking status (PLL reference clock source lock state)
- Packet loss (with real time counter display of the number of snapshot loss)
- Acquisition data display (such as oscilloscope function)

These critical data are displayed on the client GUI. Unlike other tools providing manual "one-time initialization check", VadaTech DAQ Series™ updates these critical data continuously in real time.
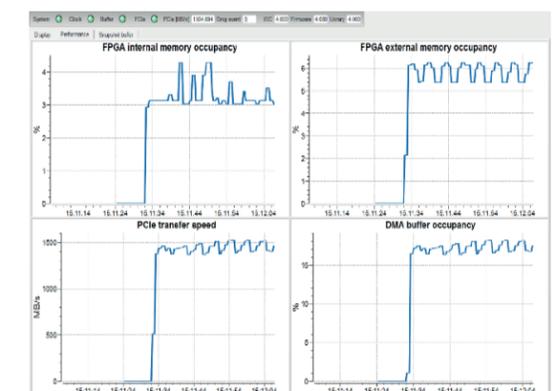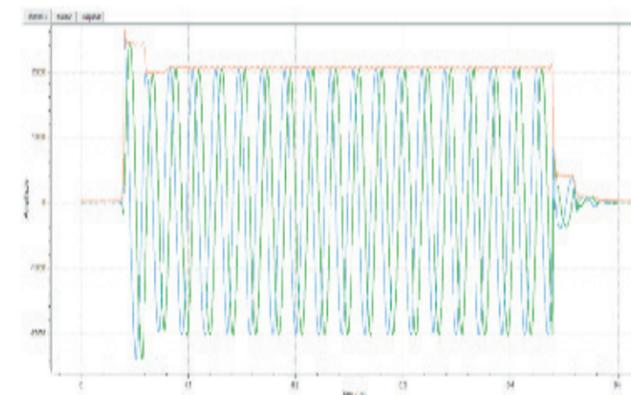
VadaTech support special design requirements and services(*) including:

- Customized DMA (FPGA - CPU Direct Memory Access)
- DAQ multi-channels multi-boards coherent acquisition and trigger synchronization
- Standard FPGA support package
- Spectrum analyzer GUI mode
- Integrated platform user manual
- Training and integration
- Certified test record

(*)Conditions apply

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- Continuous innovation
- Open systems expertise

We commit to our customers

- Partnerships power innovation
- Collaborative approach
- Mutual success

We deliver complexity

- End-to-end Processing
- System management
- Configurable solutions

We manufacture in-house

- Agile production
- Accelerated deployment
- AS9100 accredited

AS9100 CERTIFIED   ISO

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