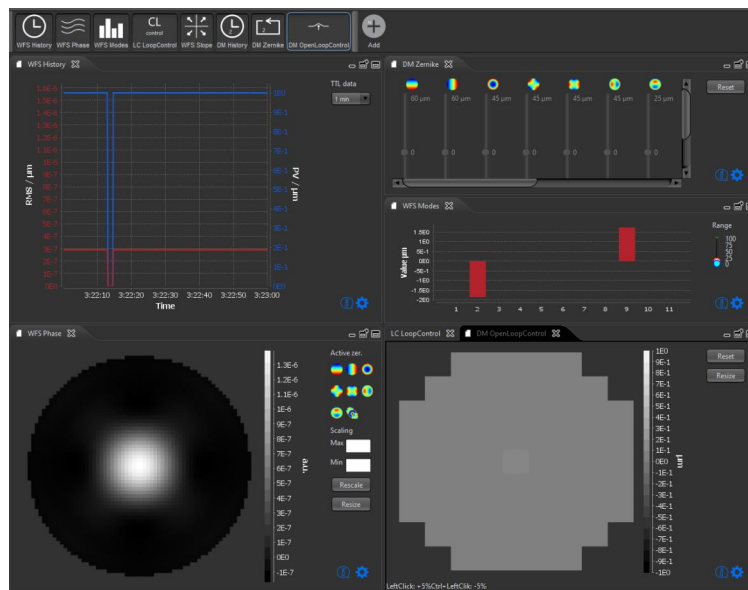


ALPAO Core Engine (ACE) is the perfect choice to control adaptive optics systems. Using **ACE**, you are able to develop quickly and efficiently your own adaptive optics instruments.



Key features

EASE OF USE

User friendly interface customizable to your needs

FLEXIBILITY

Object-oriented modular architecture

HIGH PERFORMANCE

Close the AO loop at up to 1200Hz with a pure delay around 1.5ms
Access to all data in real time

EASE OF USE

The **ACE** user friendly graphical interface allows fine tuning and closing the loop in one click. **ACE** is also easy to learn with its convenient built-in documentation, which includes realistic examples.

With **ACE**, you can easily optimize your AO system to your needs. Automated experiments and advanced control set-ups are easy to develop. It is also possible to use **ACE** without wavefront sensors and to correct aberrations with iterative algorithms.

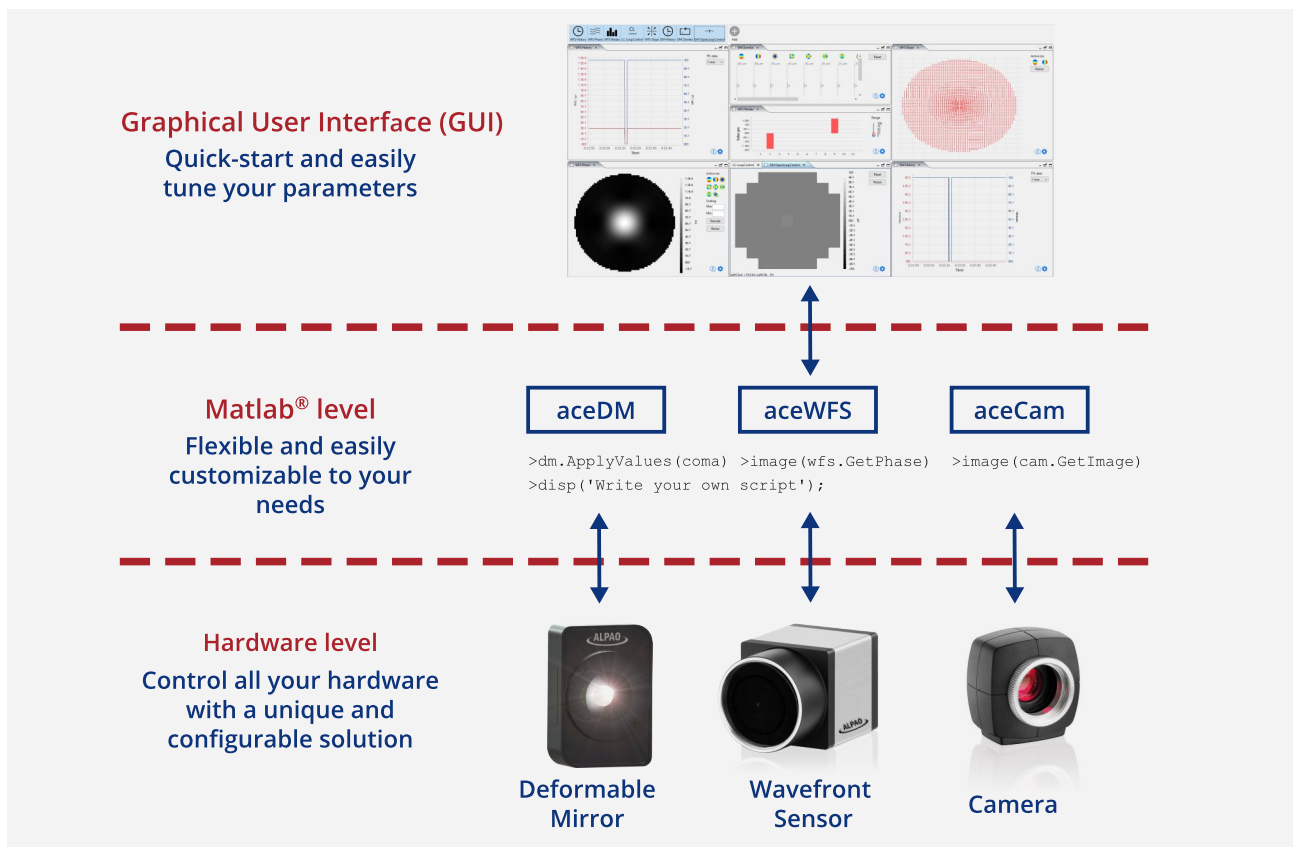
PERFORMANCES

ACE shows high performances. Depending on your hardware configuration, it is possible to close the AO loop at up to 1200Hz.

You are able to process your data in real-time and export the results, including displays and values, to a wide choice of file formats. ASCII, .xls, .tif, .jpg are among the many file options.

FLEXIBLE AND ERGONOMIC ARCHITECTURE

ACE is a powerful software architecture for adaptive optics. It is an object-oriented toolbox for MATLAB® that allows access to all your optoelectronic devices using built-in functions. Flexibility is the key to adapt to your application. With **ACE**, you are certain that the system is tailored to your need. algorithms.


MORE INFORMATION

Download our tutorials!
Try it now for free!

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- ▶ contact@alpao.fr
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Minimum configuration: 4 Gb RAM, 100 MB disk space, MATLAB® R2014b or higher.

MATLAB® is not included in ACE and need to be purchased separately.

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For the most demanding applications, ALPAO can provide you with the state-of-the-art **ALPAO Core Engine *fast* (ACE *fast*)**. *ACE fast* is a CPU linux based Real Time Computer (RTC) running up to 5kHz with a pure delay lower than 150 μ s.



Key features

SPEED

Up to 5kHz

LOW LATENCY AND JITTER

Pure delay
as low as 150 μ s

FLEXIBILITY

Modification of the code
running on the control node

ACE fast UNIQUE ARCHITECTURE

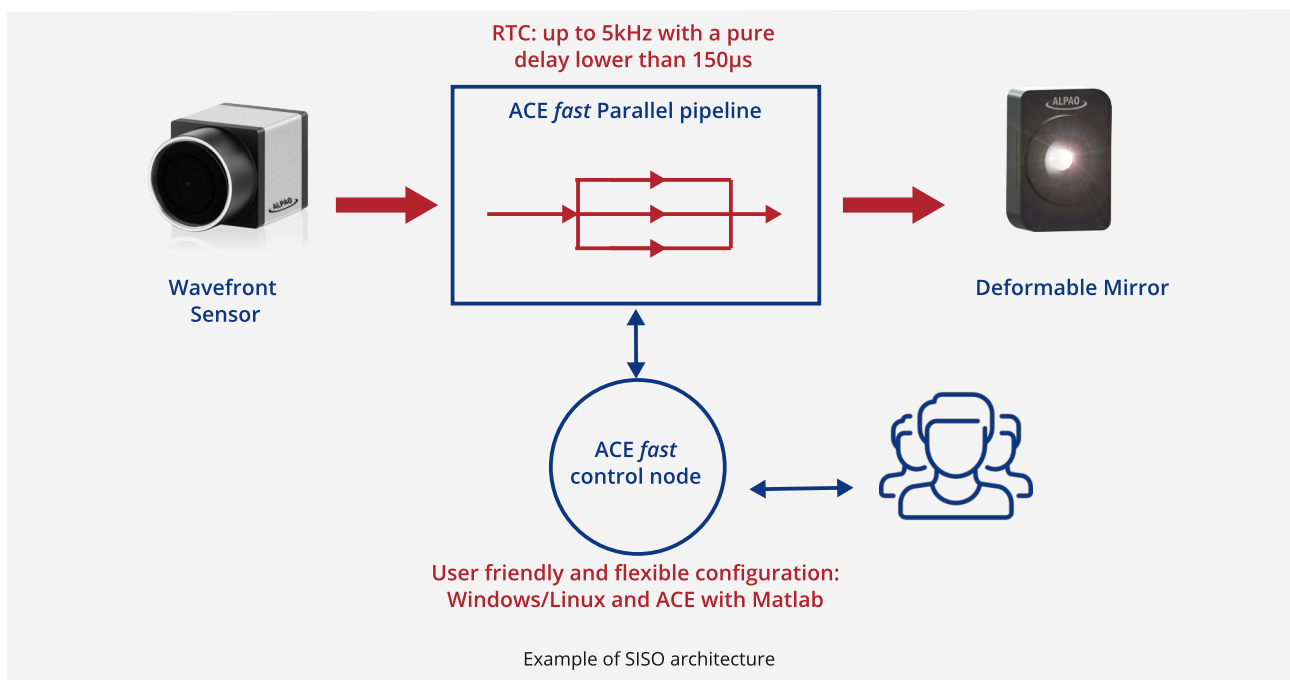
ACE fast can be easily customized to fit your application. It allows for example different kind of architecture such as SISO (Single Input Single Output), SIMO (Single Input Multiple Output) or MIMO (Multi Input Multi Output). Large capacity storage device can also be added as an option to save all telemetry from your experiment.

The ACE fast pipeline is specially optimized for the AO loop performances.

The ACE fast control node is based on the ACE toolbox, already powering more than 100 adaptive optics systems worldwide. The ACE layer is based on the standard Matlab® environment.

The following functionalities are provided in ACE:

- Step-by-step operation of the ACE fast pipeline: Interactive manipulation of the input/output data from each processing stage.
- Non-intrusive monitoring of all data steams (such as raw images, centroids (slopes), reconstructed wavefront map and Zernike, and decomposition deformable mirror command vector...).
- Configuration of each worker process such as integration time, CCD gain, CCD readout mode, CCD dark and flat images for gain/offset compensation, threshold level, target centroids (reference slopes), partial command matrix, integrator gain, deformable mirror offsets.
- Script-based generation of all calibration data such as reference centroids, influence matrix, dark and flat images.



MORE INFORMATION

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