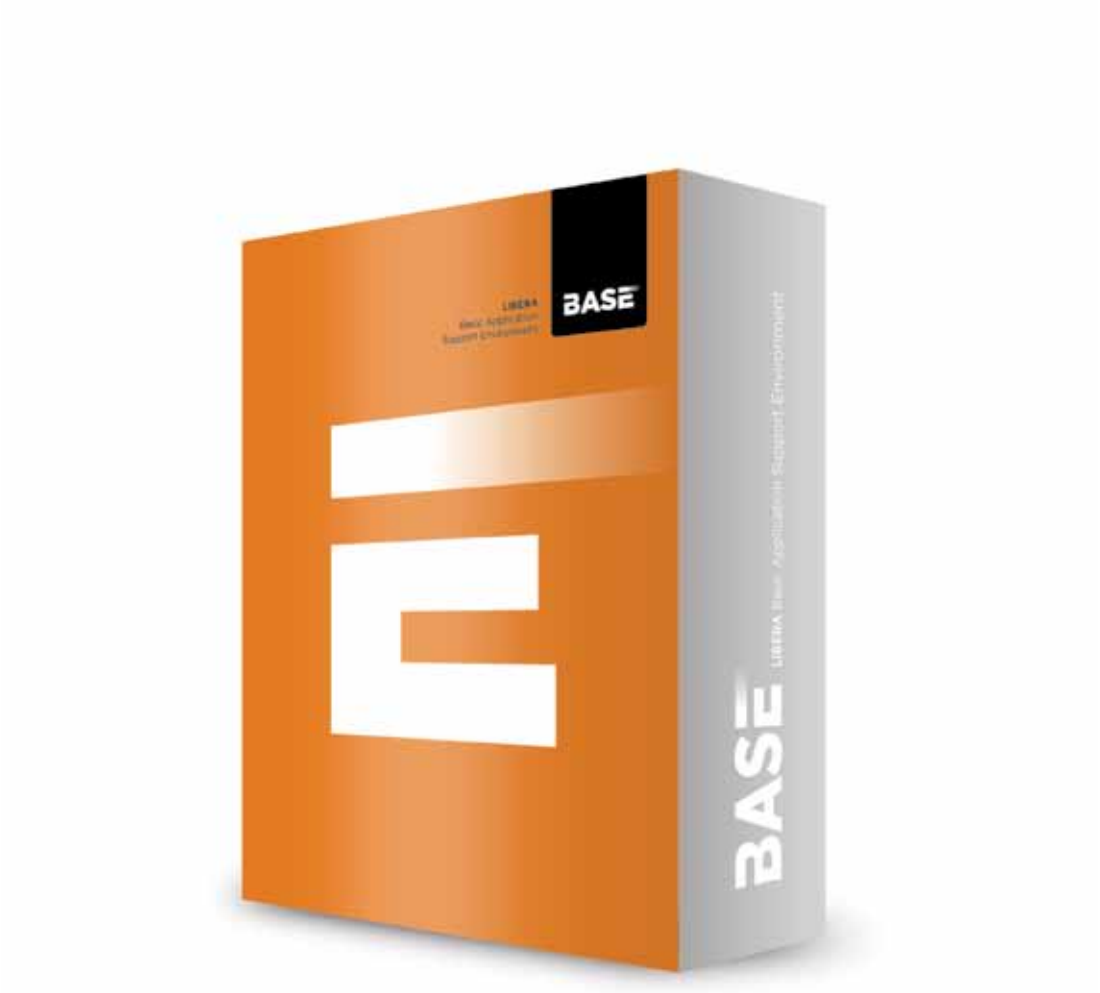
Basic Application
Support Environment

Powered by **Libera**
BASE



Libera BASE narrows the gap between your HW and the machine Control System.

- Easy start-up and control
- Rapid prototyping
- Rapid application development
- Connection of the instrument with the Control System
- Overall system reliability assurance

When designing your system in various environments, Libera BASE enables easy start-up and control. Its comprehensive architecture supports rapid prototyping and application development, especially for high speed FPGA processing. It efficiently connects the HW, FPGA and SW with the users' Control System. Libera BASE is suitable for, but not limited to, Libera instruments.

Benefits

Ready for a direct use on new instruments
- Enables immediate and unified access to Libera instruments from a familiar working environment to explore, configure and monitor the instrument
- Acquire signals provided by instruments
- Supported out of the box: Matlab, Octave, Microsoft Office, OpenOffice, web services

Easy to learn
- Provides intuitive ways to use instruments
- Use cases and examples shorten the learning curve

Simple, versatile and effective instrument interfaces
- Same interface concepts shared by all instruments (configuration registry, signal acquisition, FPGA and Software Development Kits)
- Matlab, Octave, Office suites, and others
- Web interfaces to access instruments from anywhere, including mobile devices
- Command line tools for scripting
- Libera MCI programming interface (C++, Python, Ruby, Java)

For advanced users
- Development of experimental setups and processing algorithms through integrations for experimental environments (programming languages and visualization tools).
- Creating new solutions by combining multiple instruments.

Ready to be integrated in various Control Systems
- EPICS, TANGO, users' specific Control Systems etc.

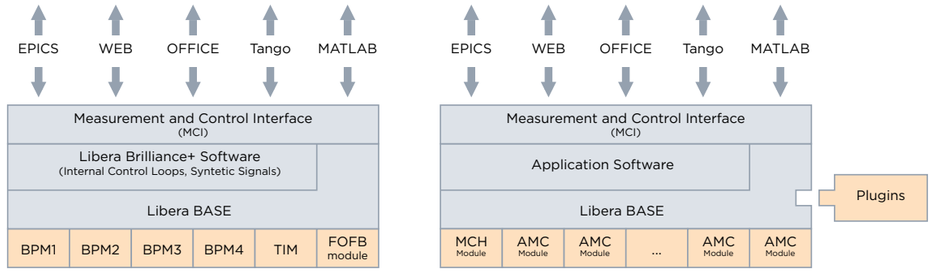
Suitable to various hardware technologies
- Libera HW generation B, µTCA, and many others that will emerge in the future
- Simplifies incremental upgrade of instruments (performance, obsolescence of components)
- Makes migration of instrument applications from one hardware technology to another a simple and easy task
- Allows a wide range of instrument combinations using ready to use "components"

Supports reconfigurable instruments
- Behavior of the instrument can be customized and improved
- Plug-in functionality, developed by Instrumentation Technologies
- FPGA and Software Development Kits to create extensions that fine-tune and customize instruments for particular environments. These extensions seamlessly integrate with existing infrastructure.

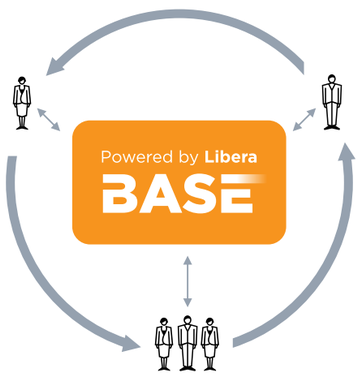
Rapid prototyping and creation of new instruments
- You can design your solution upfront, concentrating on core development challenges
- Integration of signal and control paths with the hardware
- High quality of Libera BASE components enables rapid development of instruments
- Reuse of components and previously implemented solutions
- Standardized environment
- Incremental development whenever possible

Community and support
- Sharing knowledge and support within community
- Support and consulting by Instrumentation Technologies' expert

High-level System Architecture



Software modules are implemented using the Libera BASE framework, which provides HW abstraction and simplifies development and integration. Libera BASE also takes care of all common tasks such as platform management and health monitoring. Besides this, Libera BASE is an extensible application layer with configuration parameters (registry tree) as well as signal acquisition, processing and dispatching functionality. On the top layer, it provides the Measurement and Control Interface (MCI) with a development package and an example CLI utility for open interaction in different control systems. All the software runs on a standard Linux distribution (for example Ubuntu Linux).

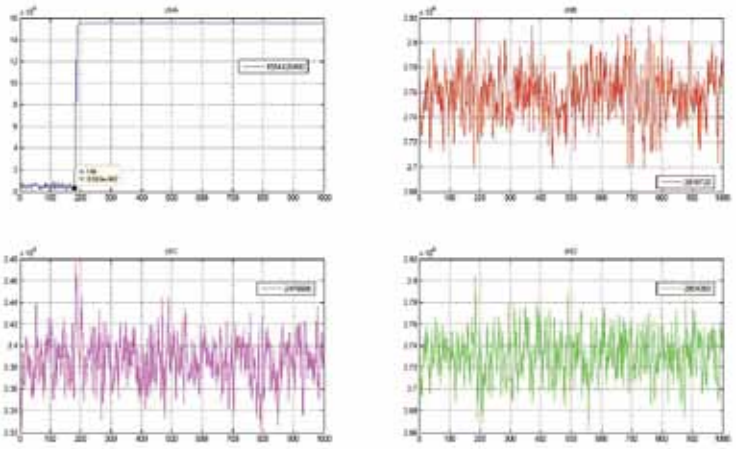


Application and Alghorithm Sharing

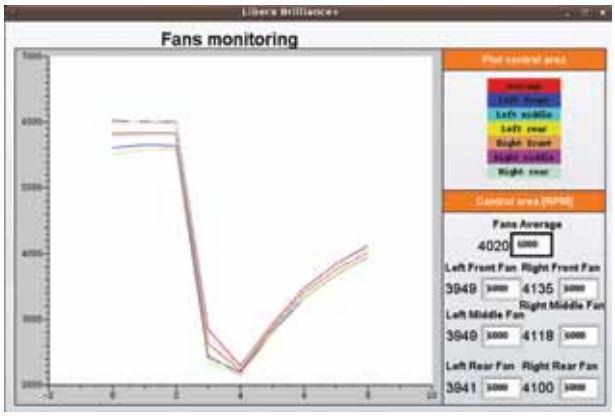
Examples

RUBY

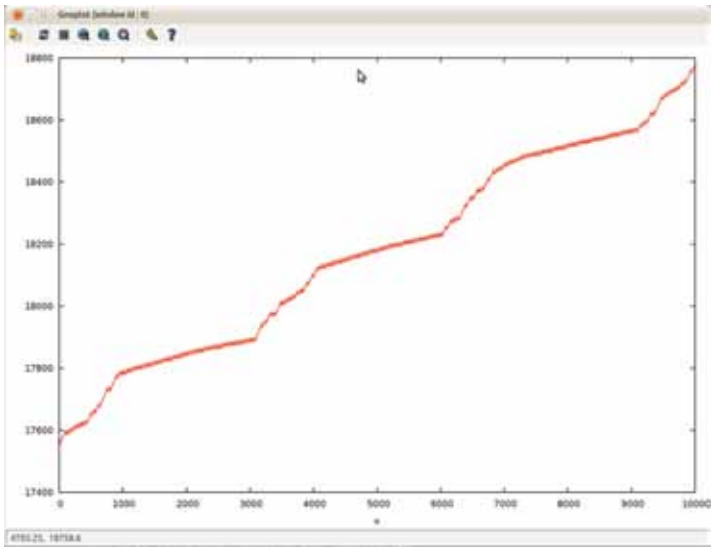
MATLAB



EPICS EDM



GNU PLOT



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Technical Support

Prompt and reliable. You can ask for on-site support or we can assist you remotely. You are also welcome to join us at the Libera Workshop training sessions to get the most out of Libera products.

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