



Arion-100 Real-time Technology

Arion-100 is an integrated, industrial and real-time environment providing complete virtualisation for your system. Through its Arion-100 product line, Arion offers a solution based on an Ethernet network to easily execute real-time applications.

Main Features

- Only two commands to exchange data within the system:
 - Read() to read data,
 - Write() to produce data,
- Real-time distribution of data across all applications,
- Data integrity guarantee within the system: temporal and spatial consistency,
- Supports the main operating systems,
- Cyclical, event-based or isochronic communication services,
- Offers system-level services to the application:
 - availability of a distributed time-stamp system (accuracy $\leq 1 \mu\text{sec}$), synchronization of applications, date-stamping of data,
 - full configurability of the system via one "xml" file
- Execute, with full transparency, connection and distribution of physical I/O's among the applications.

Products

A set of products to create your system:

- Arion 100-PCI board
- Arion 100-PMC board
- Arion-io Module that accepts numerous I/O boards

An industrial solution

- Complete galvanic isolation
- Extended temperature range -40°C to $+85^{\circ}\text{C}$

N.B. Product reference numbers are found on the respective sheets.



Operating Mode

Services	Architecture	Communication
<ul style="list-style-type: none"> • IPC's distributed between heterogeneous machines • Availability of a time-stamp system (accuracy $\leq 1 \mu\text{sec}$) • Synchronization of the distributed applications • Local or remote downloading of functional parameters. 	<ul style="list-style-type: none"> • Multi-master architecture with distributed database shared by the applications • Bus, tree, star topology • Architecture based on a hot redundancy for communication • A deterministic solution 	<ul style="list-style-type: none"> • Method of access: CSMA-CD • Communication management via a DTDMA type mechanism • Traffic: cyclical, encyclical, isochronic • Connection model: PC, PDC, M/S (Peer to Peer) • Transmission: up to 85Mbits



ARION-100 Technology

Operating system

Operating systems supported by Arion-100 boards:



The application interface is simplified by the use of 2 elementary commands Read() and Write(), which are independent of the size of the data.

Examples of use

Arion-100 technology resolves a number of architecture problems via a simple Ethernet network standard

- Ensuring a determinism without hindering communication,
- Providing hot redundancy between interconnected machines by guaranteeing data integrity,
- Having a solution that provides fine synchronization of remote applications,
- Making the application's code portable

Benefits

- **Gains in development time:** a virtualisation of the platform enabling a 30%-40% reduction in the time required to develop deterministic applications within a distributed architecture,
- **Compatibility:** virtualisation of the platform that takes complete charge of the data exchanges and sharing ("application to application" and "application to physical I/O's") within the system, as well as the mixed operating systems capability,
- **Deterministic and real-time data transmission:** fundamental properties of Arion's patented technology due to the adaptation of object theory to data exchanges,
- **Synchronization by the network of distributed applications:** availability of a distributed time-stamp system accurate to 1 microsecond that can be used to resynchronize remote processes,
- **Optimization of bandwidth:** up to 85% for application data.