

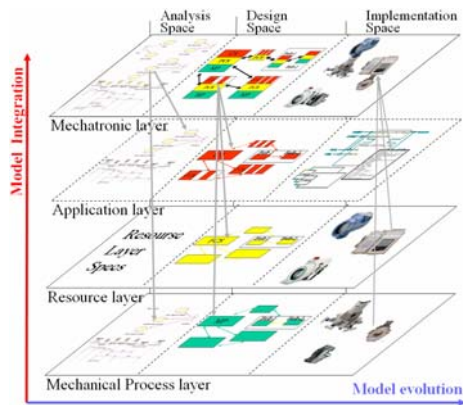
## ► About Archimedes System Platform



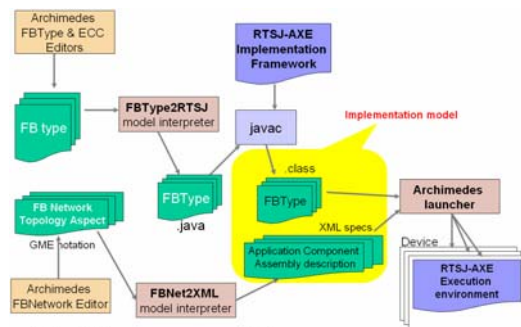
Archimedes is an IEC 61499 compliant System Platform for the development of Function Block based distributed Industrial-Process Measurement and Control Systems (IPMCSs).

## Archimedes System Platform consists of:

### -An Architecture (MIM Architecture)



### -A Development Process

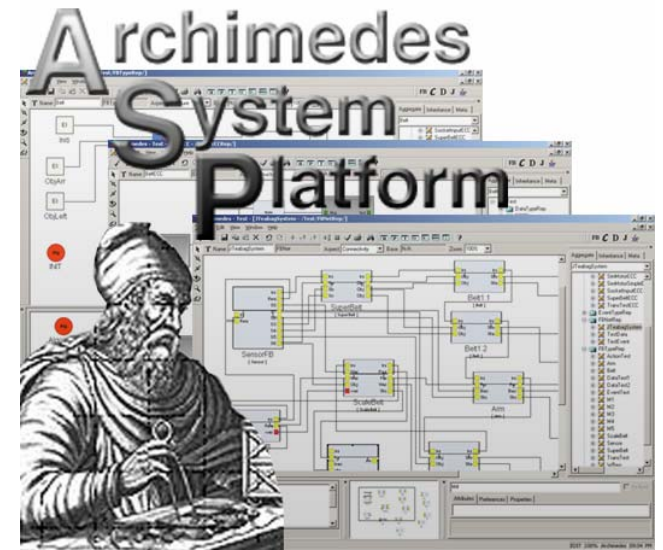


### -An Engineering Support System (Archimedes ESS)

## ► More information on Archimedes ESS

For more information about Archimedes System Platform, CORFU ESS and downloaded material have a look at

<http://seg.ece.upatras.gr>  
<http://seg.ece.upatras.gr/MIM>  
<http://seg.ece.upatras.gr/Corfu>



# Archimedes System Platform

IEC 61499 Compliant

A next generation prototype platform that supports model driven development of component-based Mechatronic Manufacturing Systems.



**Software Engineering Group**  
 Electrical & Computer Engineering  
 University of Patras  
 Greece

Software Engineering Group  
 Electrical & Computer Engineering  
 University of Patras  
 Greece

## ► Archimedes System Platform (ASP)

Archimedes is a prototype system platform that attempts to facilitate the integrated development (concurrent engineering) of the different parts of Mechatronic Systems, exploiting the MIM architecture.

### Model Integrated Mechatronics (MIM)

Model Integrated Mechatronics (MIM) is a new paradigm in the development of Mechatronic Manufacturing Systems. MIM exploits the Model Driven Architecture and the IEC61499 function block approach, to allow the MechaTronic System (MTS) builder to compose the design model of the system from already existing MechaTronic Component (MTC) descriptions and proceed through an automated model transformation process to the implementation model of the system.

Archimedes system platform along with the appropriate extensions can be utilized to address the development of complex Mechatronic manufacturing systems that allow run-time reconfiguration exploiting the IEC61499 Function Block model.

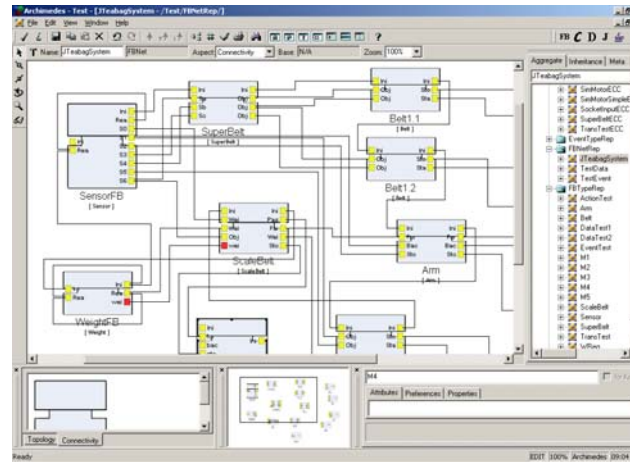
The Archimedes System Platform is comprised of:

- A methodology.
- A framework.
- A set of run time environments.
- An Engineering Support System.

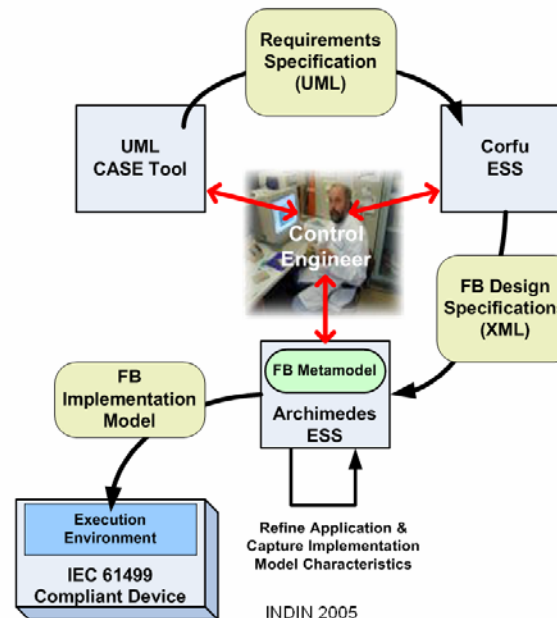
## ► Archimedes ESS

Archimedes ESS (Engineering Support System) is a first attempt to provide a reference implementation for the MIM paradigm. The Archimedes ESS is a Toolkit that supports the construction of IEC 61499-compliant Function Block based design models for distributed control and automation and their subsequent transformation to executable systems.

Archimedes ESS is constructed using the Generic Modeling Environment (GME), a configurable toolkit for creating domain-specific modelling and program synthesis environments.



Archimedes ESS integrates a set of model interpreters to allow automatic transformation of function block application design models to implementation models for specific execution environments.



## ► Archimedes Execution Environments

Archimedes ESS currently supports three execution environments. Each execution environment is supported by a specific package called Archimedes eExecution Environment (AXE) package.

### 1. RTSJ-AXE package



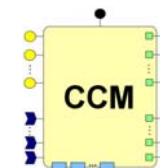
The RTSJ-AXE package is based on RTSJ and currently supports TimeSys RI and Jamaica. This implementation framework provides all the benefits of using the Real-Time Java technology. A prototype implementation is provided for evaluation on request.

### 2. RTAI-AXE package



The RTAI-AXE package exploits RTAI, a real-time Linux variant, to provide an open source real-time implementation framework that provides extremely good performance results.

### 3. CCM-AXE package



The CCM-AXE package exploits the CORBA component model specification. A prototype implementation is included in Archimedes ESS main package.

Archimedes ESS can be **downloaded for free** at <http://seg.ee.upatras.gr/mim>