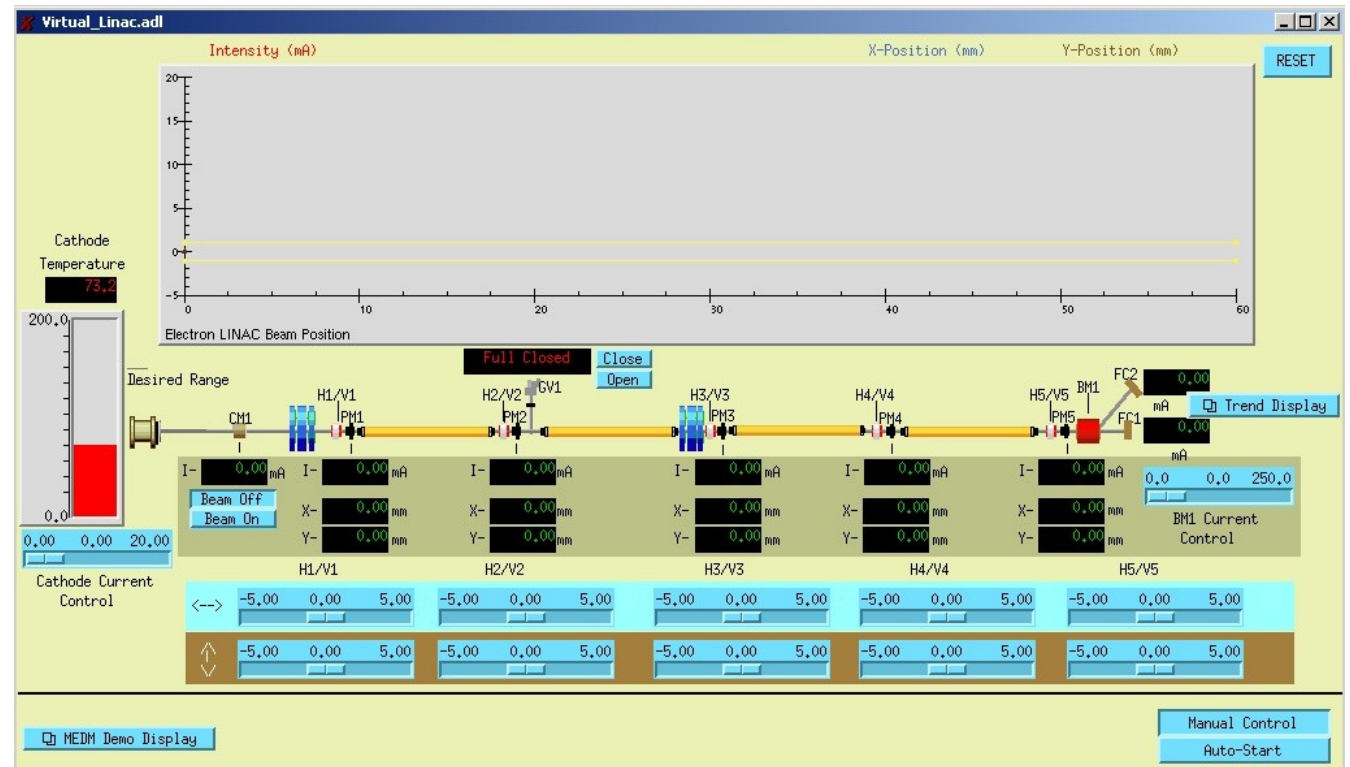
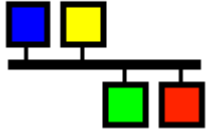


EPICS @ GSI

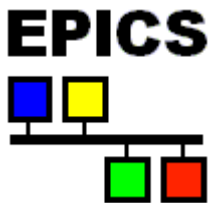
- Overview
- @ GSI
- Work documents
- VLINAC demo



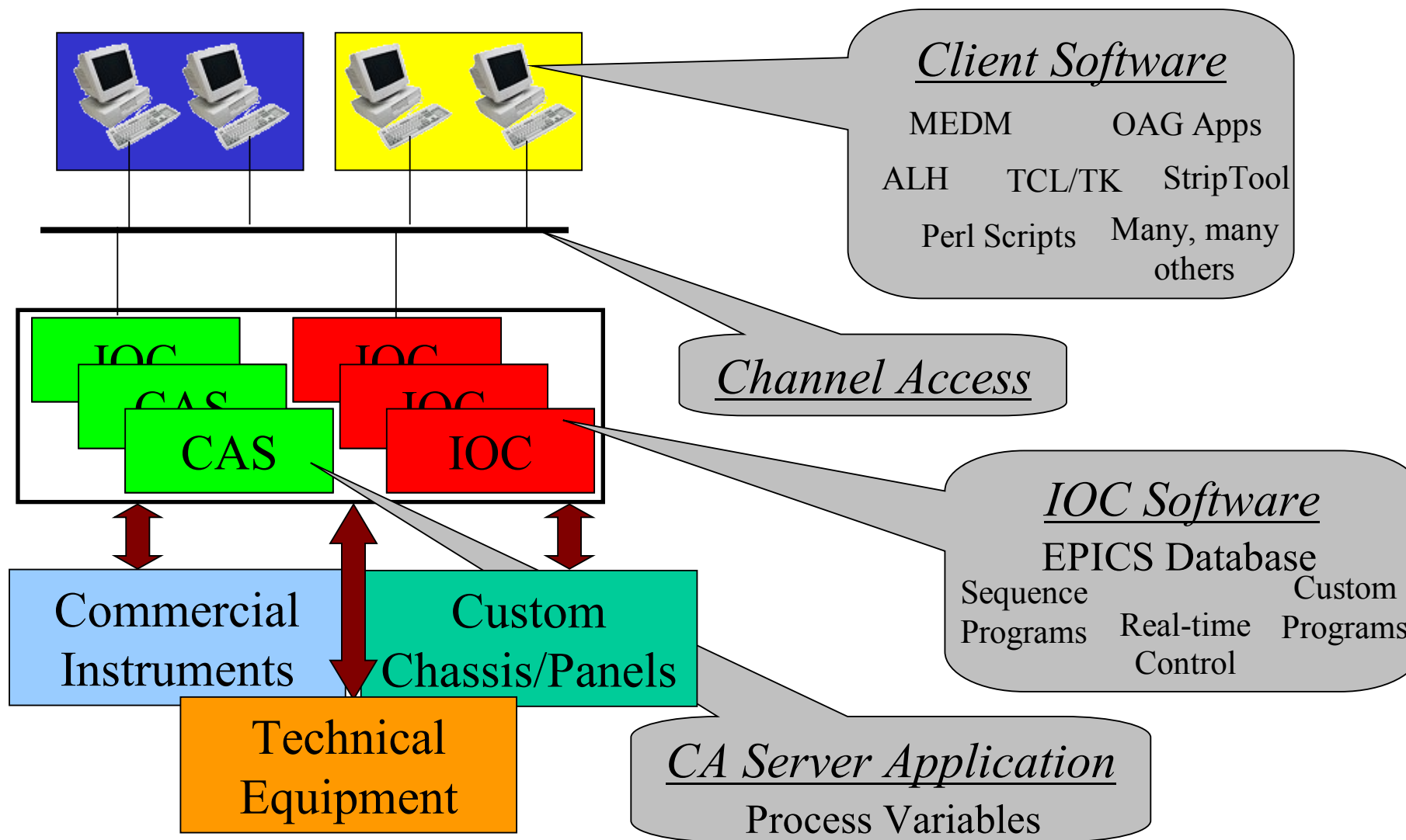


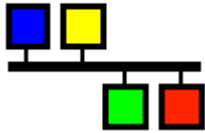
Overview

- **E**xperimental **P**hysics and **I**ndustrial **C**ontrol **S**ystem
- EPICS is NOT a single application
- EPICS is a set of tools
- EPICS source code is free
- EPICS runs on a wide set of operating systems (if not one has to make it run)

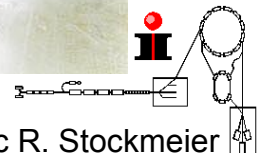
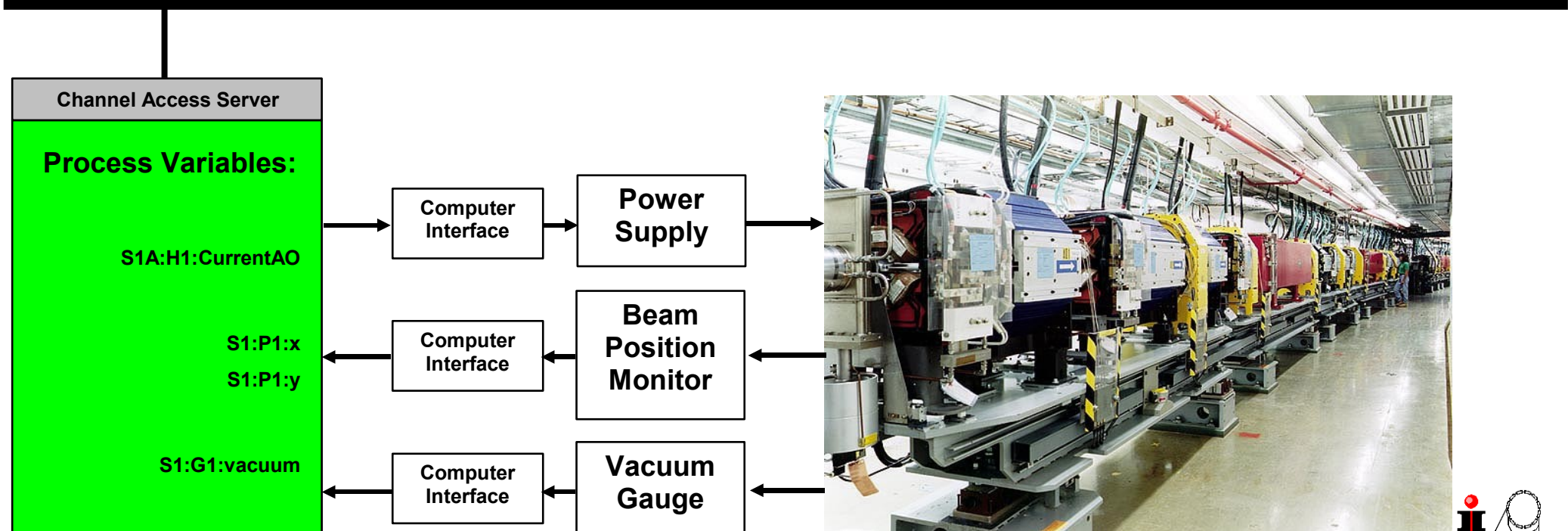
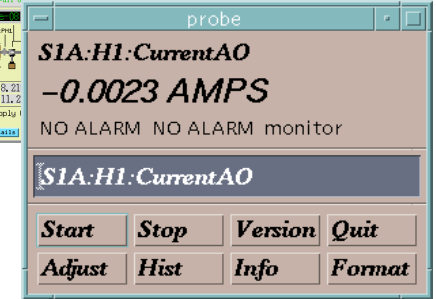
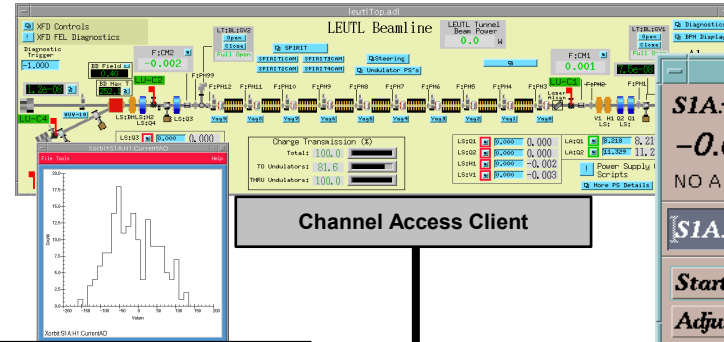


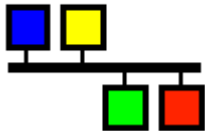
Canonical Form of an EPICS Control System





EPICS in use





EPICS @ GSI

TOF-HV-Channel.adl <@lxi012>

TOF - High Voltage

Select a SECTOR

1

2

3

4

5

6

Select a MODULE

1

2

3

4

5

6

7

8

setting Sector 1

HV value ● off

setting Module 1

HV value off

TOF Main Display

check status 0 commands in queue

High Voltage values on LEFT side					High Voltage values on RIGHT side						
rod	set	actual	demand	Sector 1	Module 1	demand	actual	set	rod		
1	<input type="text" value="0"/>	-3	0	off	■	■	off	0	-4	<input type="text" value="0"/>	1
2	<input type="text" value="0"/>	-4	0	off	■	■	off	0	-4	<input type="text" value="0"/>	2
3	<input type="text" value="0"/>	-4	0	off	■	■	off	0	-3	<input type="text" value="0"/>	3
4	<input type="text" value="0"/>	-4	0	off	■	■	off	0	-3	<input type="text" value="0"/>	4
5	<input type="text" value="0"/>	-4	0	off	■	■	off	0	-4	<input type="text" value="0"/>	5
6	<input type="text" value="0"/>	-4	0	off	■	■	off	0	-4	<input type="text" value="0"/>	6
7	<input type="text" value="0"/>	-4	0	off	■	■	off	0	-4	<input type="text" value="0"/>	7
8	<input type="text" value="0"/>	-4	0	off	■	■	off	0	-4	<input type="text" value="0"/>	8

hades.adl

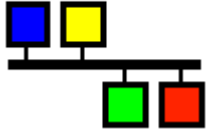
HA

Operato

SIAMs

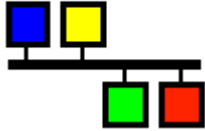
Archive

MDC gas sc



Work documents

- My Homepage
 - <http://www-linux.gsi.de/~marc/>
 - Document download section
 - Links
- GSI EPICS WIKI
 - <http://wiki.gsi.de/cgi-bin/view/Epics/WebHome>
 - Documentation page
- Main EPICS Page
 - <http://www.aps.anl.gov/epics/index.php>



VLINAC Demo

Virtual_Linac.adl

Intensity (mA) X-Position (mm) Y-Position (mm) RESET

Cathode Temperature: 73.2

Electron LINAC Beam Position

Full Closed Close Open

Desired Range

Beam Off Beam On

Cathode Current Control

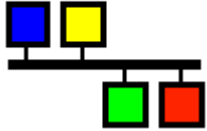
Manual Control Auto-Start

```

#####
### EPICS IOC CORE built on Aug 10 2004
### EPICS R3.14.6 $R3-14-6$ $2004/05/28 19:27:47$
#####
Starting iocInit
iocInit: All initialization complete
## Start the sequence programs. These will give an error if
## SNCSEQ is not defined, but won't stop the database from working
seq &beamTrajectory, user=marc
@(#)SEQ Version 2.0.7: Tue Aug 10 16:52:10 CDT 2004
Spawning state program "beamTrajectory", thread 0x80e4aa0: "beamTrajectory"
seq &autoControl, user=marc
@(#)SEQ Version 2.0.7: Tue Aug 10 16:52:10 CDT 2004
Spawning state program "autoControl", thread 0x80e5ee0: "autoControl"
seq &stabilizer, user=marc
@(#)SEQ Version 2.0.7: Tue Aug 10 16:52:10 CDT 2004
Spawning state program "stabilizer", thread 0x80e6910: "stabilizer"
epics>
    
```

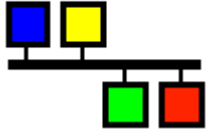
Medm User Interface

VLINAC IOC



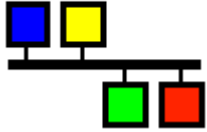
Motivation

- **EPICS** - **E**xperimental **P**hysics and **I**ndustrial **C**ontrol **S**ystem
- Basic Idea: Use as early as possible the control system data transport layer
 - **CA** Channel **A**ccess
- Embedded systems are powerful enough to run an EPICS IOC as an early “entrance point” to the Control System



What to do?

- Installation of cross compiler
- Installation of software development kit (if available)
- Download of all sources (LINUX kernel and driver)
- Compilation of the kernel plus tools (busybox for example)
- Compilation of EPICS base inside the development package
- Test the IOC on the target machine



- Two Projects:
 - **TRB** HADES board (**TDC R**eadout **B**oard)
 - Real use in an existing setup
 - ml403 Virtex 4 evaluation board
 - Future DAQ test setup