PS/OP/Info 91-07
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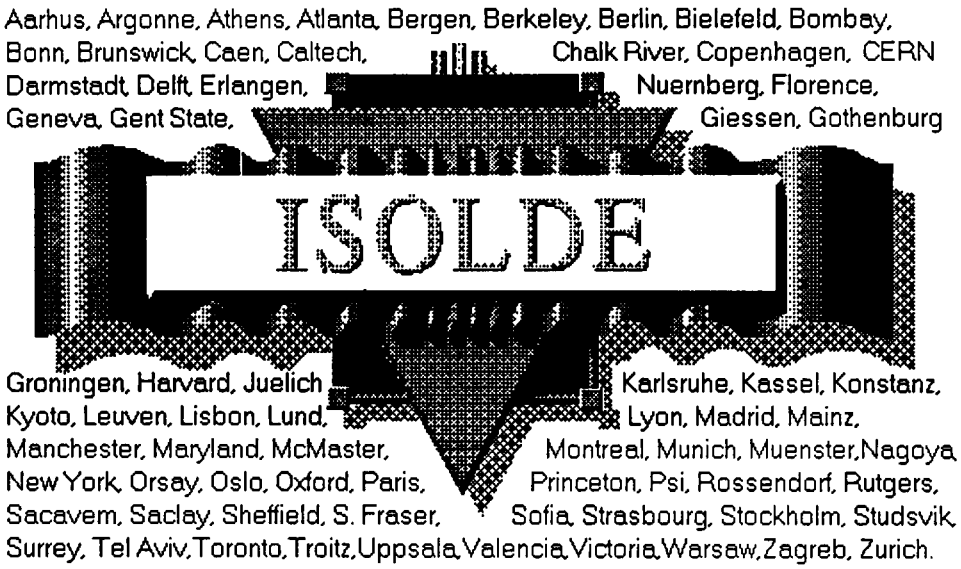
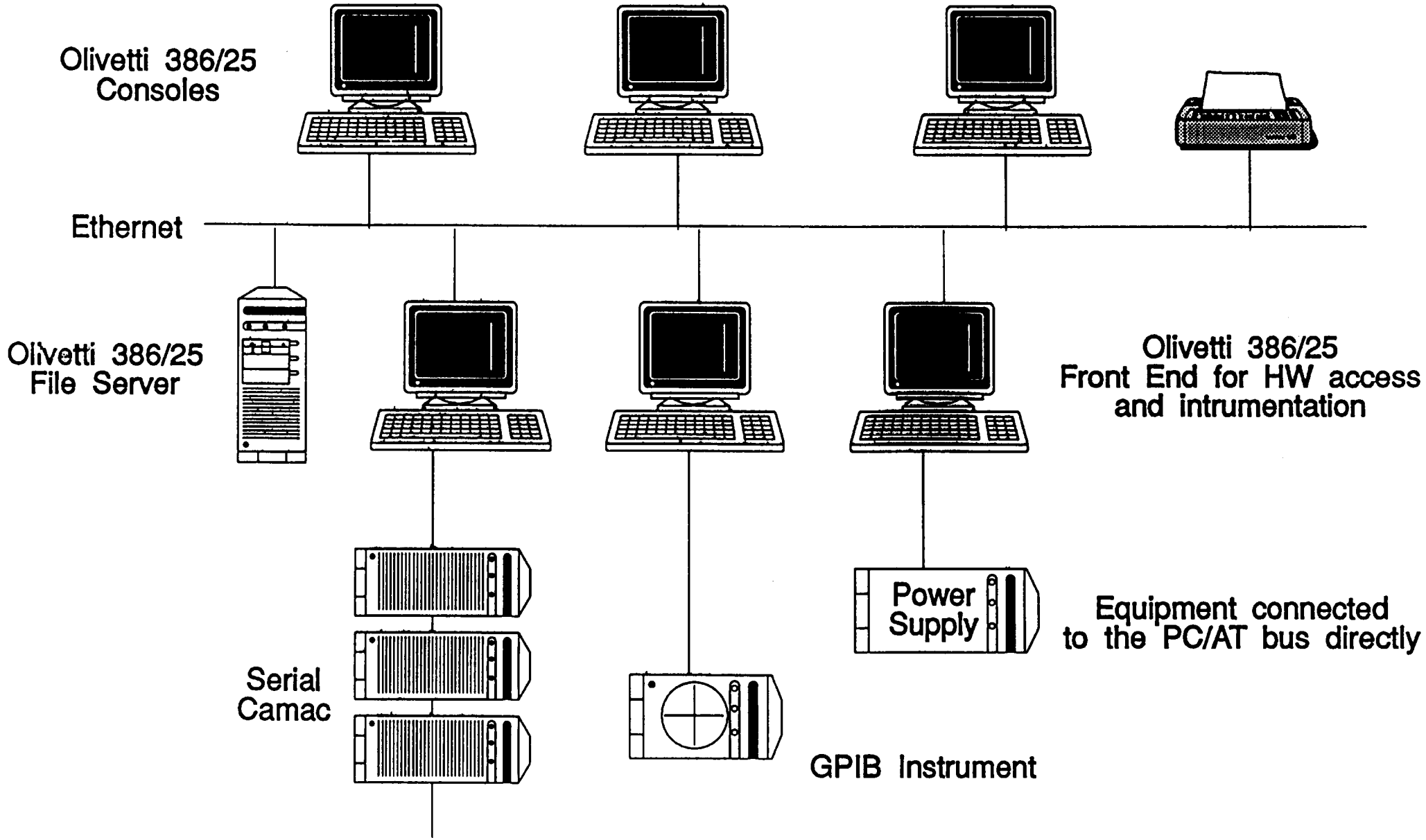
The Isolde Control System - Status Report

A. Pace



Presentation given at the PS Special Seminar of the 11th April 1991

The Isolde Control System Architecture



Isolde Numbers

(1)

- 1794 Control channels
- 3 buses: Camac, GPIB (instrumentation), PC/AT
- 84 plug-in PC/AT boards
- 8 Front End PCs with Extension chassis
- 3 consoles

Equipment Access

(2)

- High Level access from Consoles in terms of Names and Properties
- Low Level C Subroutines (Equipment Modules)
- Element Name interpretation, Front End Computer name and Equipment Module name resolution, Remote Procedure Call hidden and entirely handled by the control system

Example, from Nodal, you type:

```
set rpc("GPS.QP180","CCV") = 23.6
```

and this will call, in the correct FEC

```
D_pow(17, "CCV", -1, 23.4)
```

With the correct Equipment Number.

Characteristics

(5)

High Level Development Tools

- Interactive Edit-Compile-Link-Debug process as if C was interpreted.
- While editing, context sensitive hypertext documentation that includes C reference and programs examples
- Dynamic Link
- Incremental Link and Compile
- Dialog Editor, Pixmap and Icon Editor, Font Editor ....

Characteristics

(6)

Integrated in the Office Network

- Databases and Documentation available from PC and Macintoshes
- Statistics, Logbook
- Allow development from the offices
- In the users culture
- Avoid proliferation of different computer types and operating systems.

(3)

Tools

- User Interface: Microsoft Windows
- Documentation: Microsoft Word
- Database: Microsoft Excel
- Applications: Excel, Word, Nodal for Windows, Microsoft Windows Software Development Kit
- Front End Development: Microsoft Quick C

(4)

Characteristics

Uniform and Simple

- Global View
- Entirely mastered by all persons involved
- Professional skills not necessaries: Physicists and equipment responsibles can write programs after very little training
- Quick Development

(7)

Characteristics

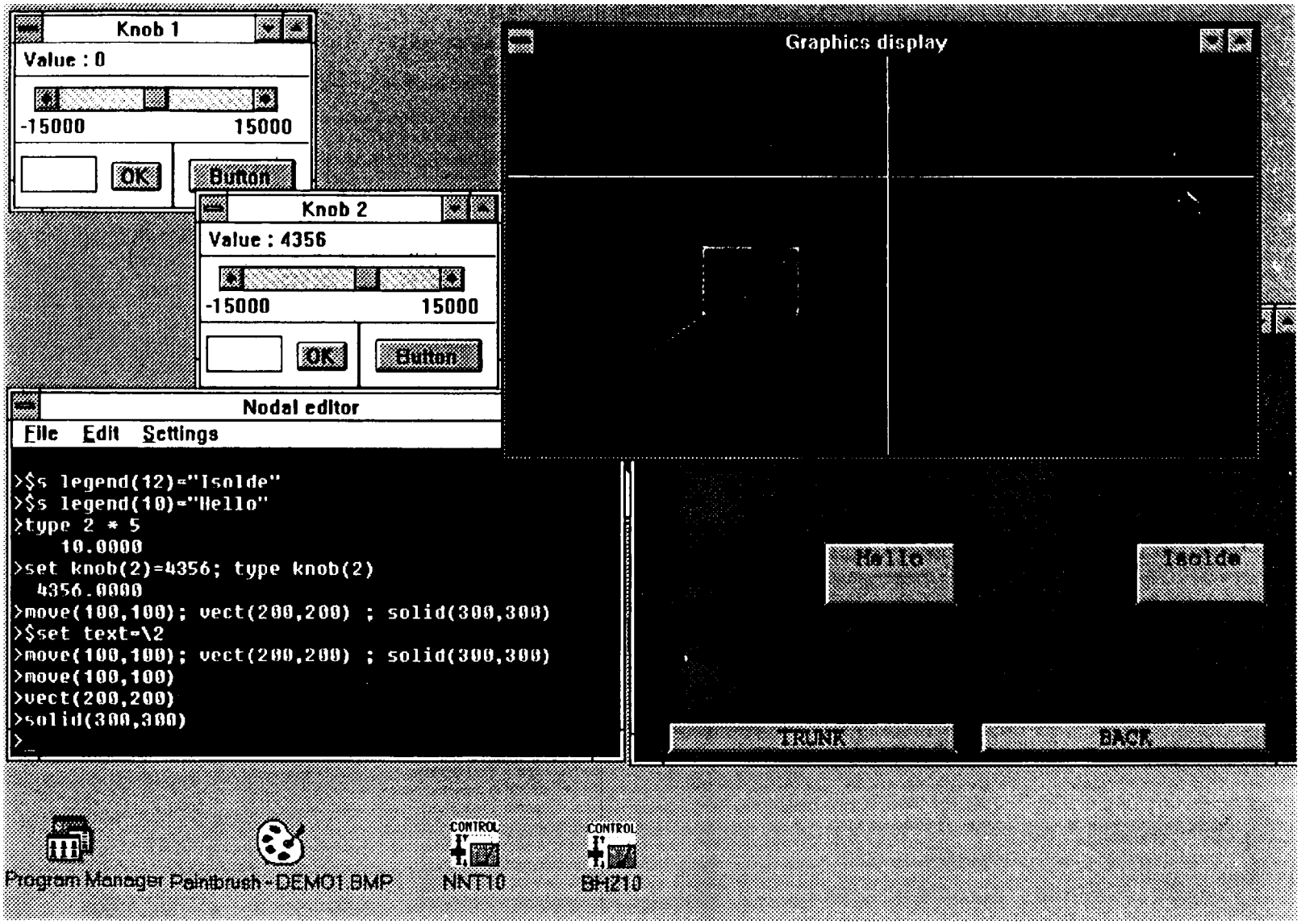
and .....

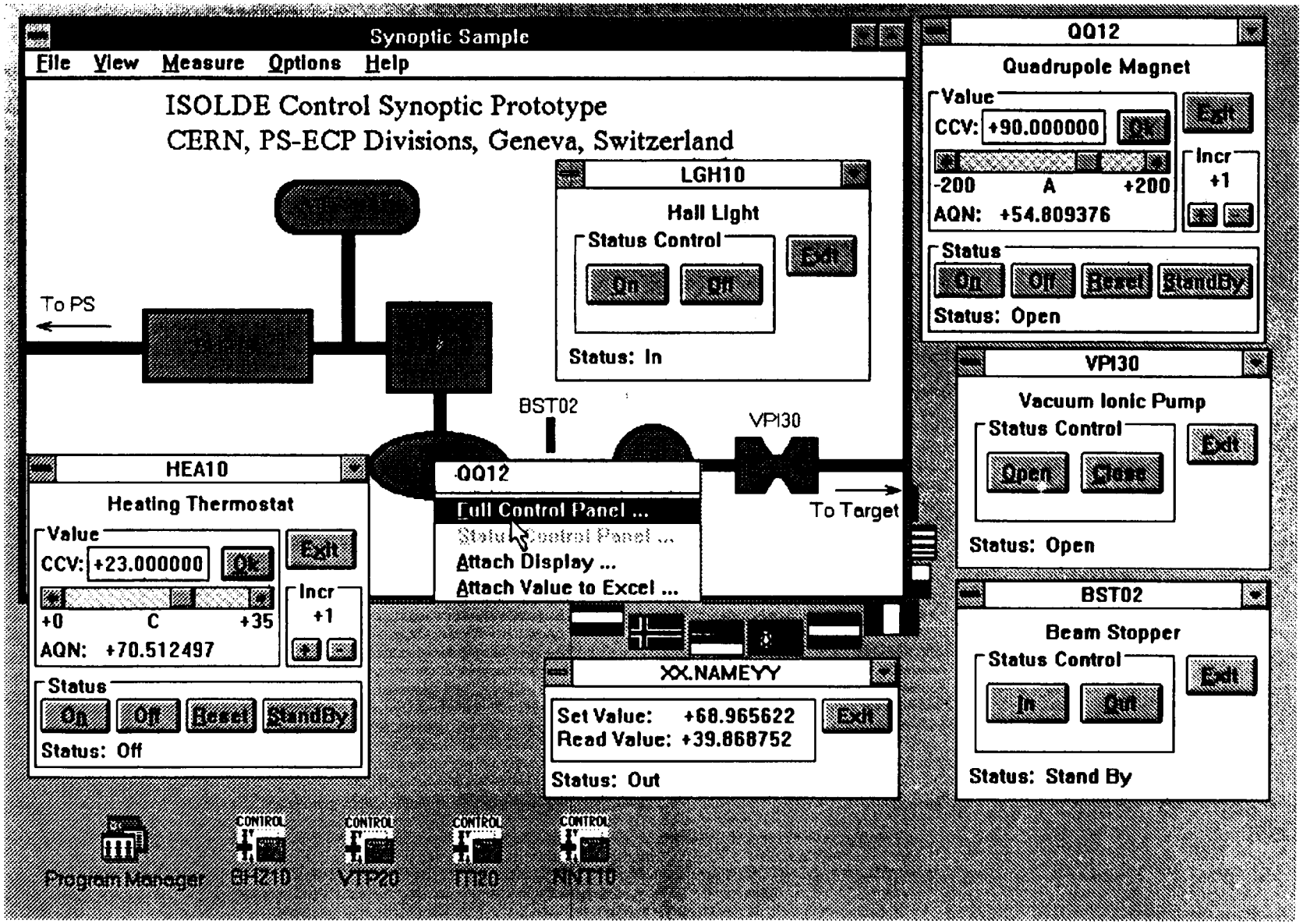
- Fast (20-30 ms Network Equipment access)
- Cheap
- European (Philips, Olivetti, Thompson, Siemens)
- ..... 10-15 Million unit/year, Wide software offer, performances increasing x2 per year, competitive market, Wide offer of add-on boards, World wide standard, binary compatibility, documentation .....

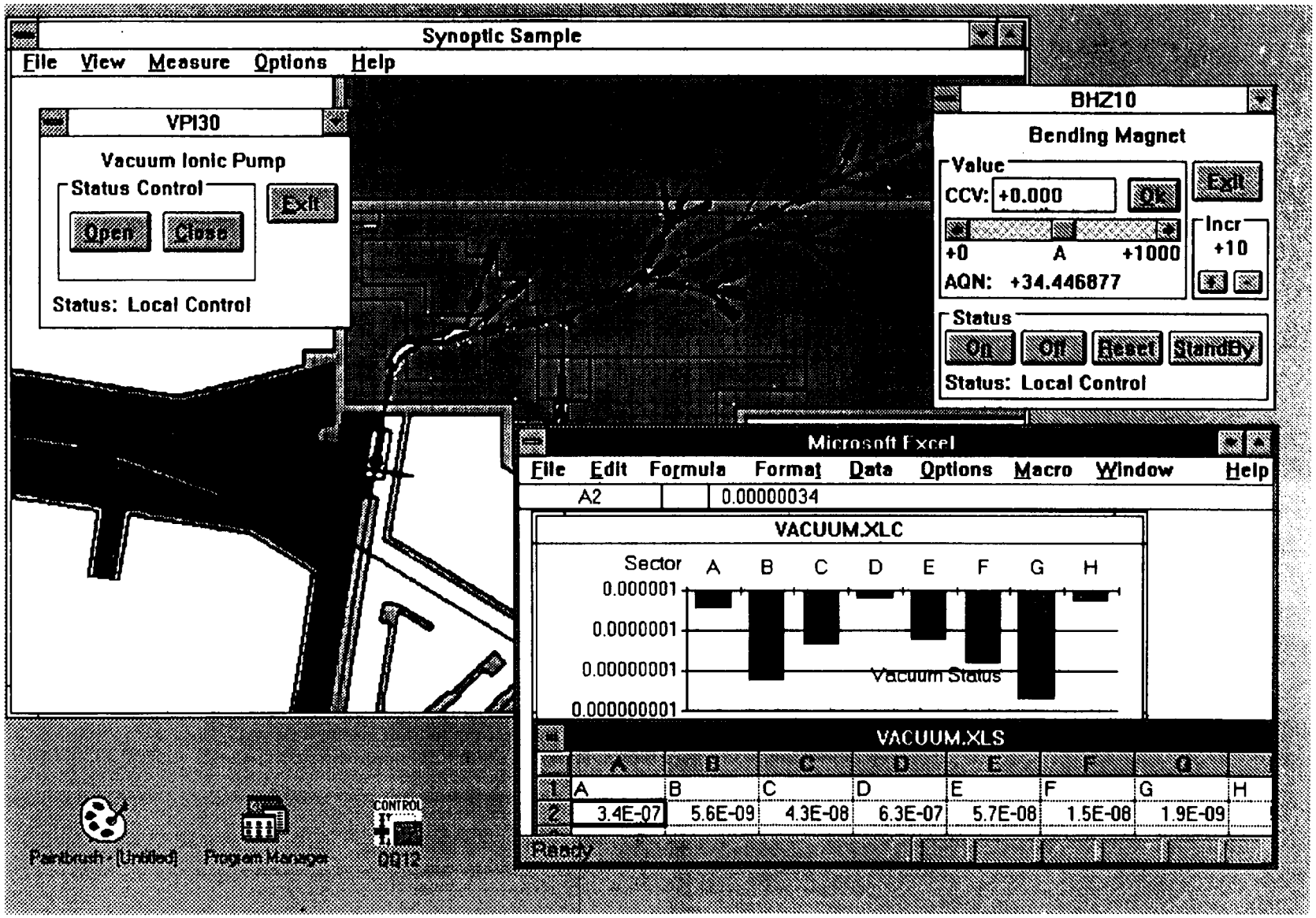
(8)

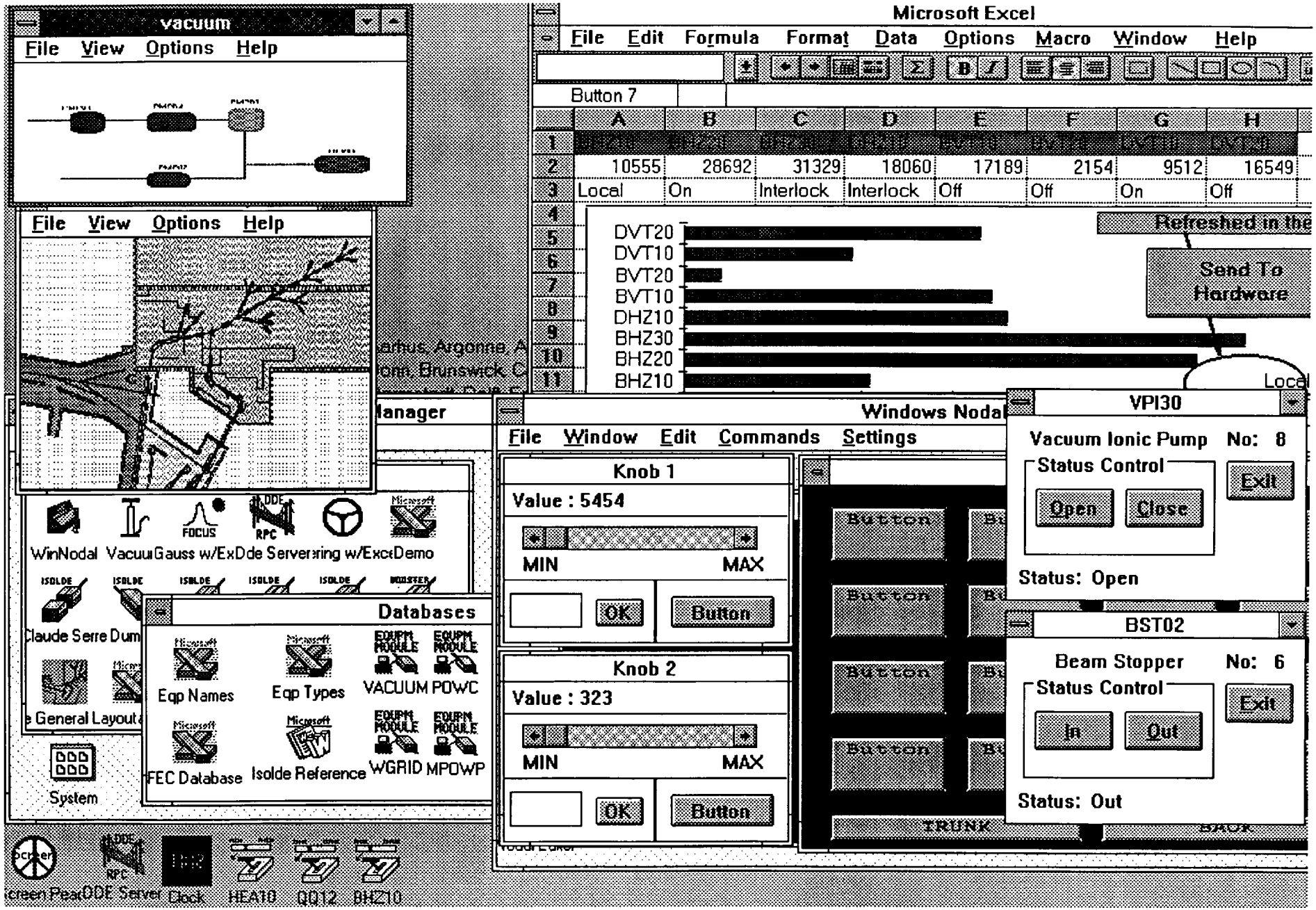
Conclusion

- Promising Experience
- Useful exchange of Ideas between MS Windows and OSF Motif
- Certainly interesting for "small" systems


Knob 1
Value : 0
-15000
15000
OK
Button
Knob 2
Value : 4356
-15000
15000
OK
Button
Graphics display
Nodal editor
File Edit Settings
>$s legend(12)="Isolde"
>$s legend(10)="Hello"
>type 2 * 5
10.0000
>set knob(2)=4356; type knob(2)
4356.0000
>move(100,100); vect(200,200) ; solid(300,300)
>$set text=\2
>move(100,100); vect(200,200) ; solid(300,300)
>move(100,100)
>vect(200,200)
>solid(300,300)
>_
Hello
Isolde
TRUNK
BACK
Program Manager
Paintbrush - DEMO1.BMP
CONTROL
NNT10
CONTROL
BH210


Synoptic Sample
File View Measure Options Help
ISOLDE Control Synoptic Prototype
CERN, PS-ECP Divisions, Geneva, Switzerland
LGH10
Hall Light
Status Control
On
Off
Exit
Status: In
To PS
BST02
VPI30
To Target
QQ12
Full Control Panel ...
Attach Display ...
Attach Value to Excel ...
HEA10
Heating Thermostat
Value
CCV: +23.000000
Ok
Exit
Incr
+1
+0 C +35
AQN: +70.512497
Status
On Off Reset StandBy
Status: Off
XX.NAMEYY
Set Value: +68.965622
Read Value: +39.868752
Exit
Status: Out
QQ12
Quadrupole Magnet
Value
CCV: +90.000000
Ok
Exit
Incr
+1
-200 A +200
AQN: +54.809376
Status
On Off Reset StandBy
Status: Open
VPI30
Vacuum Ionic Pump
Status Control
Open Close
Exit
Status: Open
BST02
Beam Stopper
Status Control
In Out
Exit
Status: Stand By
Program Manager
CONTROL
CONTROL
CONTROL
CONTROL


Synoptic Sample
File View Measure Options Help
VPI30
Vacuum Ionic Pump
Status Control
Open
Close
Exit
Status: Local Control
BHZ10
Bending Magnet
Value
CCV: +0.000
Ok
Exit
+0
A
+1000
AQN: +34.446877
Incr
+10
Status
On
Off
Reset
StandBy
Status: Local Control
Microsoft Excel
File Edit Formula Format Data Options Macro Window Help
A2
0.00000034
VACUUM.XLC
Sector A B C D E F G H
0.000001
0.0000001
0.00000001
0.000000001
Vacuum Status
VACUUM.XLS
A B C D E F G H
1 A B C D E F G H
2 3.4E-07 5.6E-09 4.3E-08 6.3E-07 5.7E-08 1.5E-08 1.9E-09
Ready
Paintbrush - [Untitled]
Program Manager
CONTROL
QQ12


vacuum
File View Options Help
File View Options Help
Microsoft Excel
File Edit Formula Format Data Options Macro Window Help
Button 7
A B C D E F G H
10555 28692 31329 18060 17189 2154 9512 16549
Local On Interlock Interlock Off Off On Off
DVT20
DVT10
BVT20
BVT10
DHZ10
BHZ30
BHZ20
BHZ10
Refreshed in the
Send To Hardware
Local
Windows Nodal
File Window Edit Commands Settings
Knob 1
Value : 5454
MIN MAX
OK
Button
Knob 2
Value : 323
MIN MAX
OK
Button
VPI30
Vacuum Ionic Pump No: 8
Status Control
Open
Close
Exit
Status: Open
BST02
Beam Stopper No: 6
Status Control
In
Out
Exit
Status: Out
Databases
Eqp Names
Eqp Types
VACUUM POWC
FEC Database
Isolde Reference
WGRID MPOWP
System
WinNodal
Gauss w/ExDde Server
Demo
Claude Serre
HEA10
QQ12
BHZ10