



PARQUE CIENTÍFICO MURCIA

Supercomputing Center Murcia Science Park Foundation (FPCMur) First steps

José Guillén Mercader
Project Manager

Braga, May 27th ,2010

Murcia Science Park Foundation (FPCMur)

- **Foundation**
- **Organization chart**
- **Available spaces**
- **Added value**
- **Supercomputing Center birth**

Supercomputing Center

- **Supercomputing Center**
- **Infrastructures**
- **Ben Arabí Supercomputer**
- **Services**
- **Results**
- **Conclusions**



Murcia Science Park Foundation

- **Foundation**
- Organization Chart
- Available spaces
- Added value
- Supercomputing Center birth

Murcia Science Park Foundation

Autonomous organization

- Non-profit
- Founded February 2007

Promote companies development

- High technology and knowledge level
- Direct implication of public Universities

Economic growth in Murcia Region

- Framework: Economy based on knowledge new challenges
- Commitment: Strategic plan 2007-2013

GOVERNING BOARD



Escudo de Molina de Segura

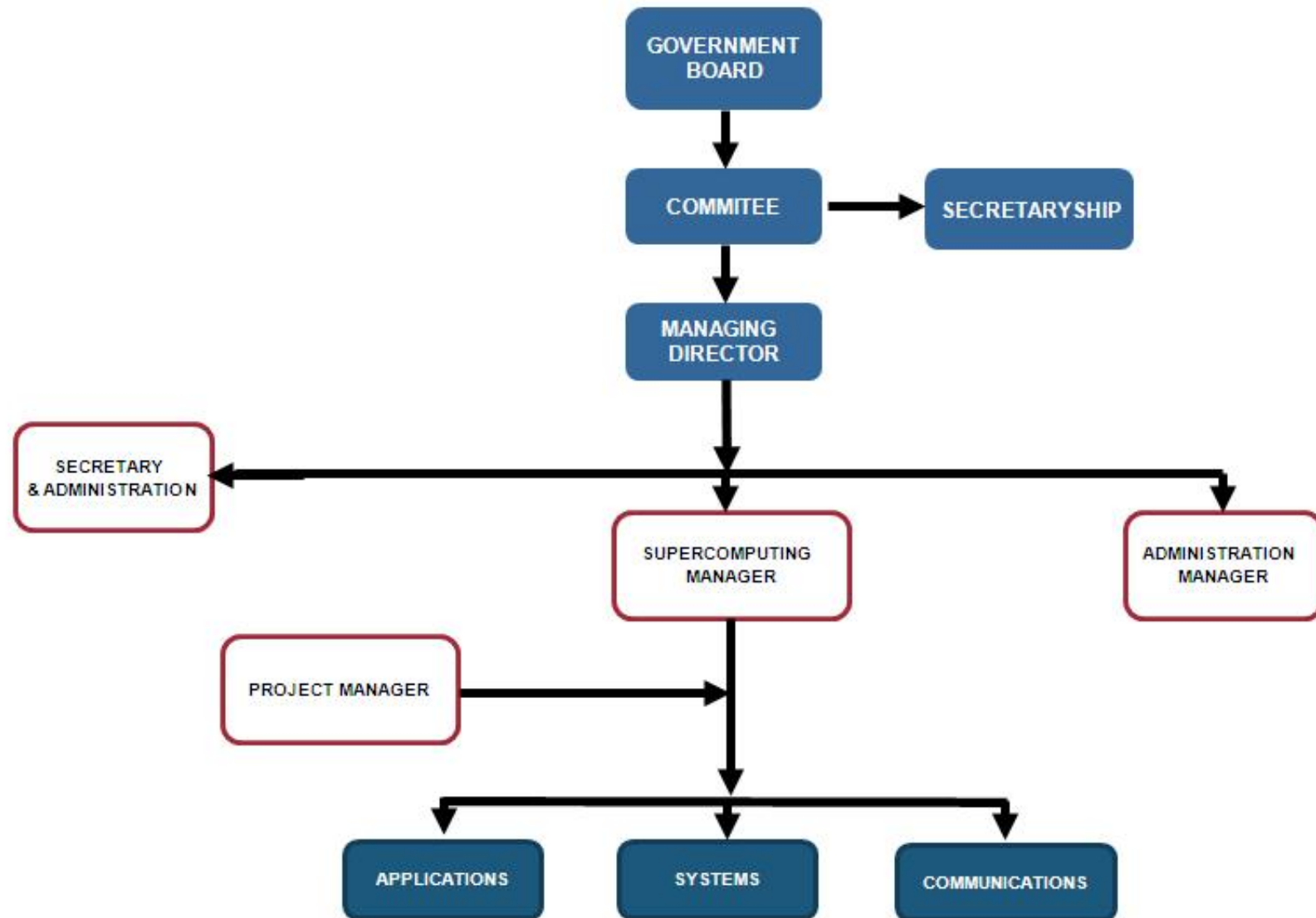




Murcia Science Park Foundation

- Foundation
- **Organization Chart**
- Available spaces
- Added value
- Supercomputing Center birth

Organization Chart





Murcia Science Park Foundation

- Foundation
- Organization Chart
- **Available spaces**
- Added value
- Supercomputing
Center birth

Available spaces: Location

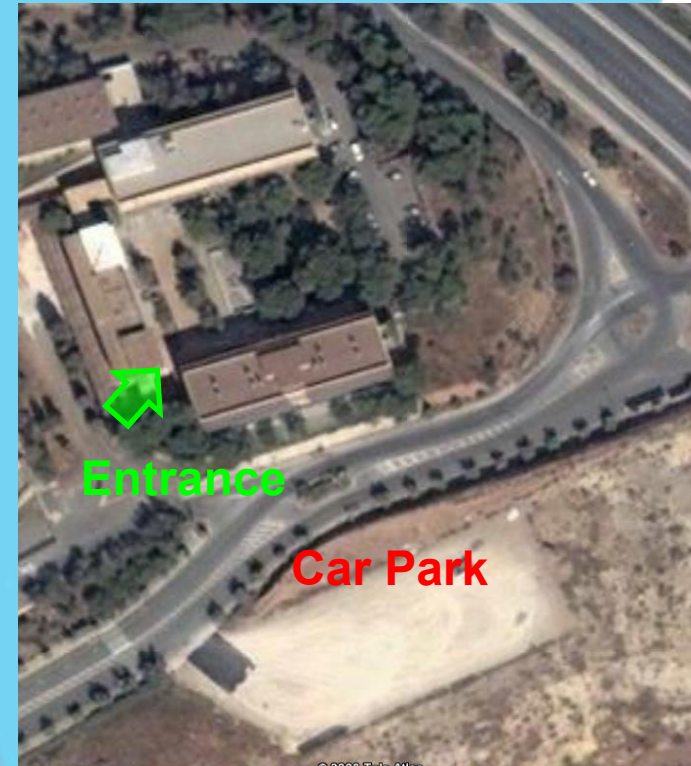


Available spaces: Espinardo Complex



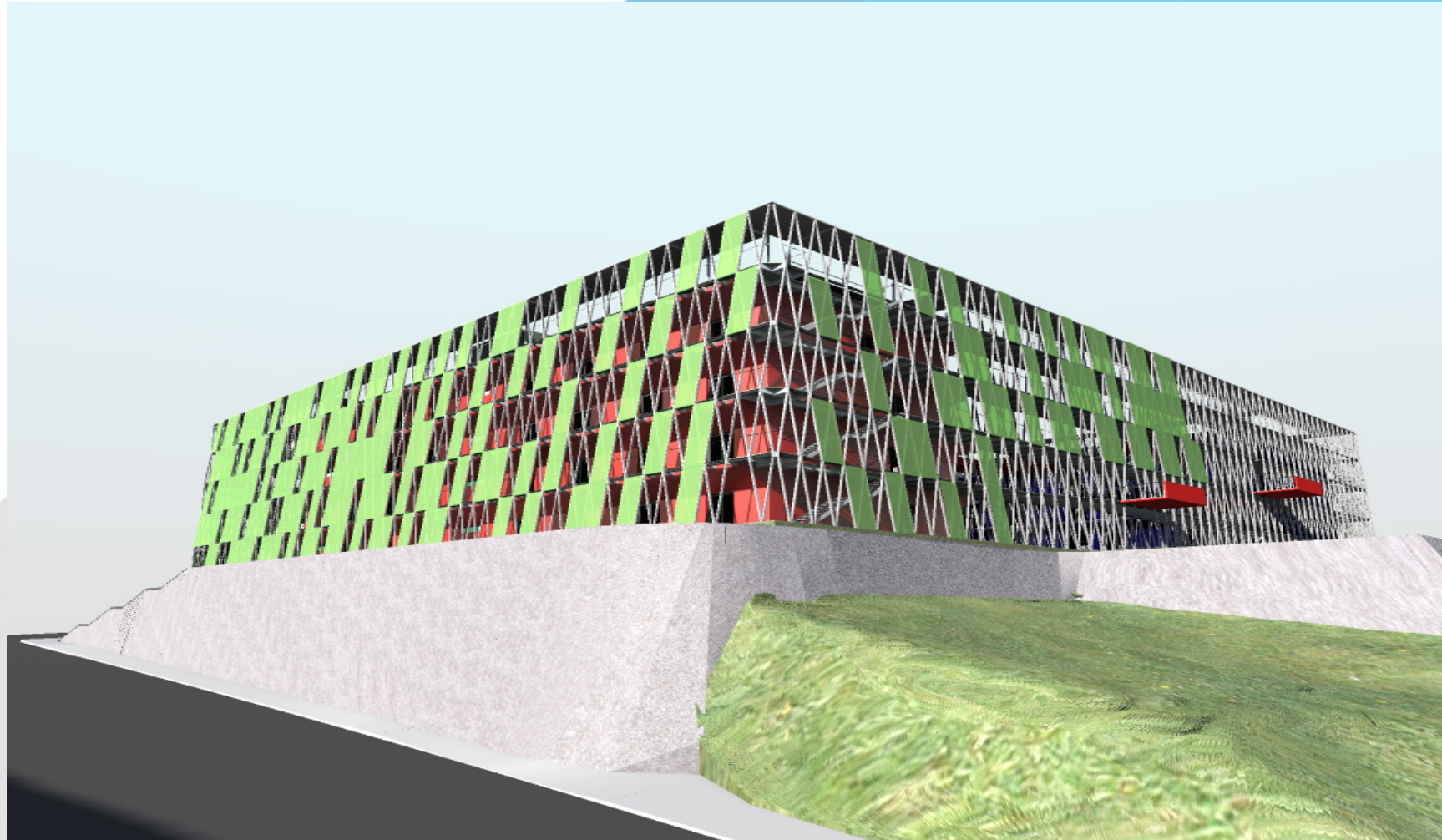
E building: 5000 m²

S, T y D buildings: 6000 m²



The Cloister

Available spaces: The cloister



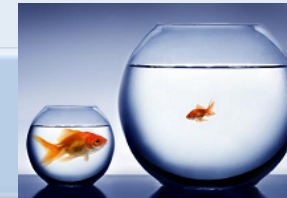


Murcia Science Park Foundation

- Foundation
- Organization Chart
- Available spaces
- **Added value**
- Supercomputing Center birth

Added value

Available spaces



Consultancy and follow up services for innovative projects

Financial grants and Collaboration for R&D projects



Horizontal Centers for innovation services

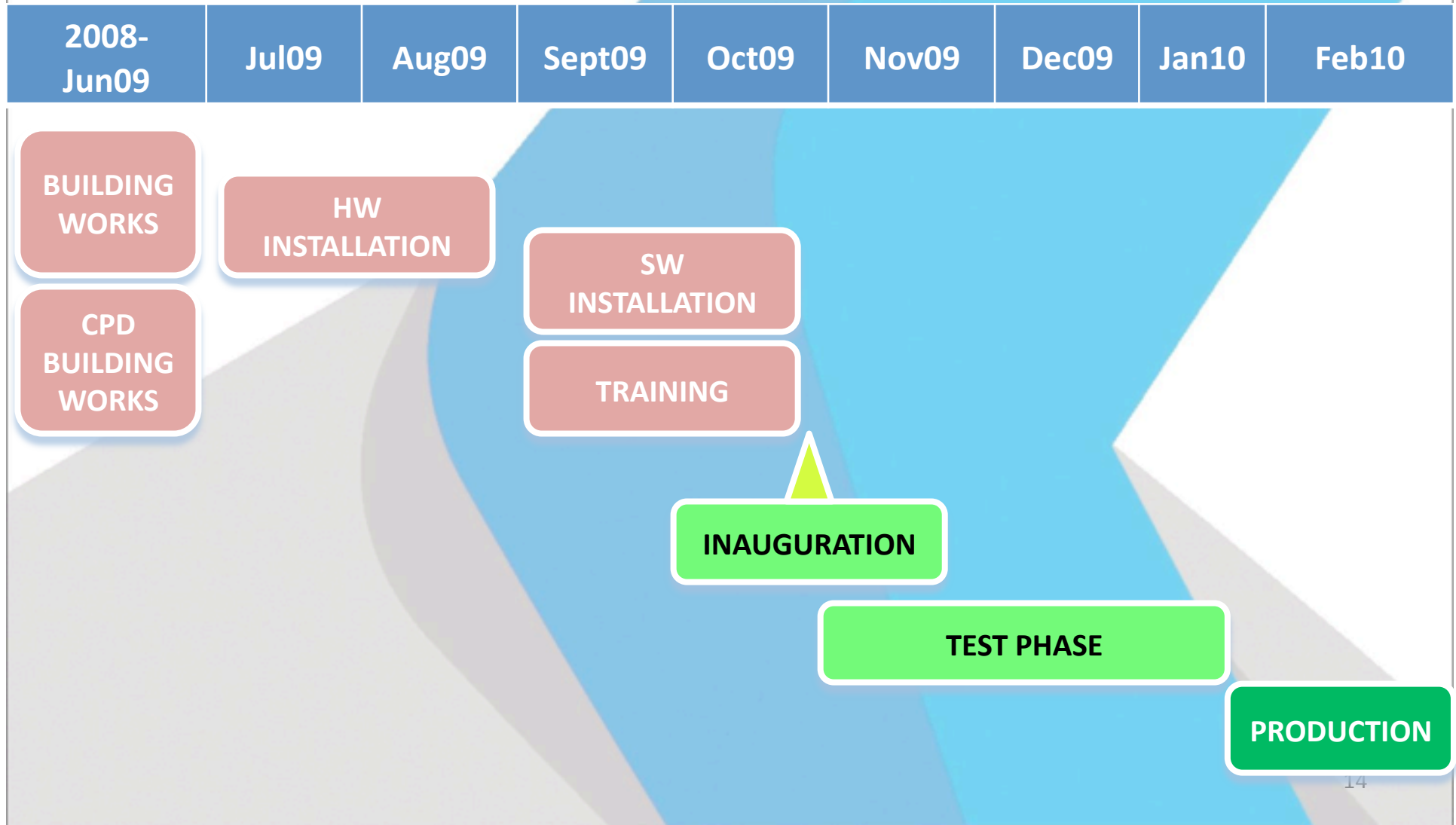
Supercomputing Center



Murcia Science Park Foundation

- Foundation
- Organization Chart
- Available spaces
- Added value
- **Supercomputing
Center birth**

Supercomputing Center Birth: Chronology



Supercomputing Center Birth



Supercomputing Center Birth



Supercomputing Center Birth



Supercomputing Center Birth: Result





Supercomputing Center

- **Supercomputing Center**
- Infrastructures
- Ben Arabí Supercomputer
- Services
- Results
- Conclusions

Supercomputing Center



Dynamic Organization

Serving PUBLIC and
PRIVATE science
community

“Promote and provide Supercomputing services to facilitate Innovation and Knowledge in Murcia Region”

“Establish **collaboration initiatives** to increase R&D&I activities”





Centro de Supercomputación

- Supercomputing Center
- **Infrastructures**
- Ben Arabí Supercomputer
- Services
- Results
- Conclusions

Infrastructures



Electric Supply

- **Continuous**
- **UPS**
- **Backup Generator**

AC

- **280 KW**
- **Temperature control**
- **Relative humidity control**



Infrastructures

Fire

- Protection and extinction



Security

- 24x7
- TV Cameras



Access

- Fingerprint access



Monitoring

- BMS Central station
- Technical 24x7 Service





Supercomputing Center

- Supercomputing Center
- Infrastructures
- **Ben Arabí Supercomputer**
- Services
- Results
- Conclusions



Ben Arabí Supercomputer

Superdome

128 cores
819 GFlops
1,5 TB RAM



Clúster HPC

102 nodes
816 cores
9,79 TFlops
1,3 TB RAM



10,61 TFlops

Communications

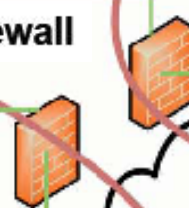
Login nodes
Superdome



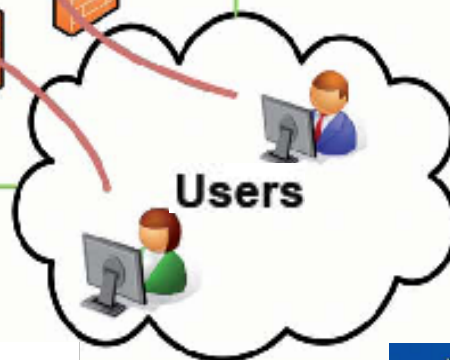
Login nodes
Cluster



Firewall



Users



EVA 8100
Disk storage
78 TB



EML 103e
Tape storage
(Backup)
164,8 TB





Supercomputing Center

- Supercomputing Center
- Infrastructures
- Ben Arabí Supercomputer
- **Services**
- Results
- Conclusions

Services

Services

Supercomputing

Support and advise

Storage

Housing



Supercomputing at Ben Arabí

Service

- **Time of Use**

Architectures

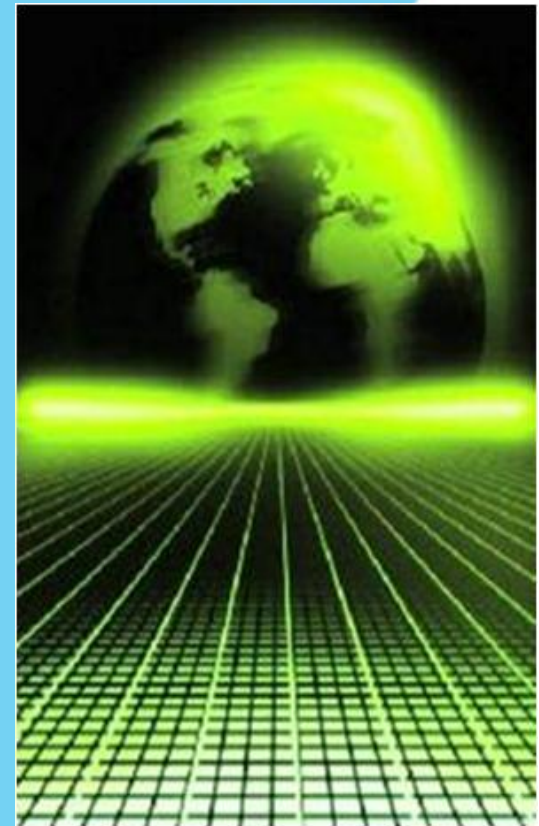
- **Shared memory (Superdome)**
- **Distributed memory (HPC Cluster)**

Storage

- **Up to 40 GB included**
- **Expandable (Storage Service)**

Support&Advise

- **Basic Support&Advise included**
- **Expandable (Support&Advise Service)**



Housing

Service

- **Housing for Racks or U's**
- **Environment conditions guaranteed**

Optional

- **Rack provision**
- **Internet Access**





Centro de Supercomputación

- Supercomputing Center
- Infrastructures
- Ben Arabí Supercomputer
- Services
- **Results**
- Conclusions

Some numbers in 7 months activity

> 20 research groups accessing SC

> 50 users

7 Companies and Research
Institutions



3 publications on international journals

4 International conference presentations

Some projects Highlights

Films

3D rendering



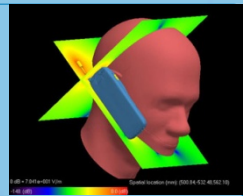
Fluid dynamics:

3D Simulation
of Strait of Gibraltar streams



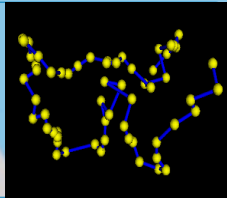
Electromagnetism:

Microstrip T modelling



Macromolecular Chemistry

Macromolecular structures



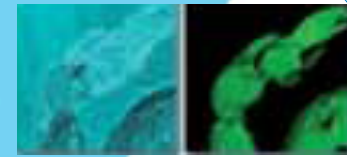
Medicine

Microscopic Images



Biology:

P Systems simulations



Mathematics:

Linear Algebra



Climatology:

Air quality in Iberia



Communications Networks Planning

- Overlay





Centro de Supercomputación

- Supercomputing Center
- Infrastructures
- Ben Arabí Supercomputer
- Services
- Results
- **Conclusions**

Conclusions

Totally Operational



10,61 Tflops



Expert Team



Boosting results

Promoting R&D&i



Easier to access SC



Thanks!



PARQUE CIENTÍFICO MURCIA
CENTRO DE SUPERCOMPUTACIÓN



PARQUE CIENTÍFICO MURCIA

THANKS!

PLEASE, CONTACT

Murcia Science Park Foundation

Supercomputing Center

José Guillén Mercader

Project Manager

jguillen@fpcmur.es

María Eugenia Requena

Supercomputing Center Manager

Fundación Parque Científico Murcia

mrequena@fpcmur.es

Ctra de Madrid Km 388.

Complejo de Espinardo, Edificio S. 30100 Espinardo, Murcia

T: 968 27 78 30

www.fpcmur.es



Braga, May 27th 2010