

## TECHNICAL SHEET

### Call for Advanced Computing Projects (3<sup>rd</sup> edition)

Ref: FCT/CPCA/2022/01

Under the terms of the Regulations for Advanced Computing Projects, the “Call Notice” document for the Call for Advanced Computing Projects is presented together with a technical sheet that includes the configuration of the available Hardware and Software at RNCA platforms.

*Preliminary note: the information presented in the technical sheet relates to the characteristics of each Advanced Computing Platform in its entirety, although only a part of the capacity will be made available in this call.*

### Computational Model: High Performance Computing (HPC)

- Hardware

Center & Platform	MACC - Bob <sup>1</sup>
Peak performance	1 PFLOP
Total Cores	9600
Total Nodes	600
CPU type (compute nodes)	2x Intel Xeon Sandy Bridge (16-core) @2,7GHz
Memory (GB RAM/core)	2
Disk Storage	1,5 PB
Storage Limit	Variable
GPU	4
GPU Type	Nvidia Tesla T4
Infiniband	FDR 56 Gb/s
File System	LUSTRE
Job Queue Manager	SLURM
CPU core.hours available for 12 months	5 million*
URL for more details	<a href="https://macc.fccn.pt/resources/hardware/bob/">https://macc.fccn.pt/resources/hardware/bob/</a>

Center & Platform	LCA-UC - Navigator/Navigator+
Peak performance	86 + 161,2 TFLOPS
Total Cores	3936 + 1280
Total Nodes	192

<sup>1</sup> Indicated capacity available between November and December 2022, for A0 and A1 types of access. Cluster Bob has limited capacity from January 2023.

CPU type (compute nodes)	2 x Intel Xeon E5-2697v2 (12-core) @ 2.70 GHz, 2x Intel Xeon Gold 6148 (20-core) @ 2.40 GHz, 4x Intel Xeon Gold 6154 (18-core) @ 3 GHz - 1 node
Memory (GB RAM/core)	4, 8 (7 nodes) / 55 (1 SMP node)
Disk Storage	220 TB + 1,27 PB
Storage Limit	Variable
GPU	8+2
GPU Type	Nvidia Tesla V100 / 2 Nvidia A40 for visualization
<i>Infiniband</i>	FDR 56 Gb/s + EDR 100Gb/s
File System	LUSTRE
Job Queue Manager	SLURM
CPU core.hours available for 12 months	26 million
URL for more details	<a href="https://www.uc.pt/lca/ClusterResources/Navigator/description">https://www.uc.pt/lca/ClusterResources/Navigator/description</a>

<b>Center &amp; Platform</b>	<b>HPC-UE Oblivion</b>
Peak performance	306 TFLOPS
Total Cores	3168
Total Nodes	88
CPU type (compute nodes)	2x Intel Xeon Gold 6354 (36-core) @ 3GHz
Memory (GB RAM/core)	5.33
Disk Storage	1.15 PB
Storage Limit	Max: 100TB per project
GPU	----
GPU Type	----
<i>Infiniband</i>	EDR HCA
File System	BeeGFS
Job Queue Manager	SLURM
CPU core.hours available for 12 months	27.8 million
URL for more details	<a href="https://www.oblivion.uevora.pt/">https://www.oblivion.uevora.pt/</a>

<b>Center &amp; Platform</b>	<b>INCD - Cirrus-A</b>
Peak performance	---
Total Cores	---
Total Nodes	---
CPU type (compute nodes)	2x AMD EPYC 7643 2.3GHz (48-core) @2.3GHz amongst others <sup>2</sup>
Memory (GB RAM/core)	5
Disk Storage	1,6 PB
Storage Limit	Variable
GPU	6
GPU Type	Nvidia Tesla T4, V100S and A100
<i>Infiniband</i>	FDR 56 Gb/s

<sup>2</sup> Query remaining CPU in the URL

	HDR 200 Gb/s
File System	CHANDELIER
File System	LUSTRE
Job Queue Manager	SLURM
URL for more details	<a href="#">Wiki INCD</a>

- GPU (*Graphic Processing Unit*)

<b>Center &amp; Platform</b>	<b>MACC - Bob</b>
Model	Nvidia Tesla T4
Number of available cards	4
Maximum capacity available for 12 months	35 040 GPU.hours* <sup>3</sup>

<b>Center &amp; Platform</b>	<b>LCA-UC - Navigator</b>
Model	Nvidia Tesla V100 (8) Nvidia Tesla A40 for visualization (2)
Number of available cards	8+2
Maximum capacity available for 12 months	45 000 GPU.hours

<b>Center &amp; Platform</b>	<b>HPC-UE   Vision</b>
Model	Nvidia A100 SXM4 40GB
Number of available cards	16
Maximum capacity available for 12 months	76 800 GPU.hours

<b>Center &amp; Platform</b>	<b>INCD - Cirrus-A</b>
Model	Nvidia Tesla T4 (4) Nvidia Tesla V100S (2) Nvidia Tesla A100 (2)
Number of available cards	8
Maximum capacity available for 12 months	70 000 GPU.hours

- Software

<b>Platform &amp; Center</b>	<b>Bob - MACC</b>
Installed Software/Modules	<a href="https://macc.fcn.pt/resources/software/">https://macc.fcn.pt/resources/software/</a>

<sup>3</sup> Cluster Bob has limited capacity as of January 2023

<b>Platform &amp; Center</b>	<b>Navigator - LCA-UC</b>
Installed Software/Modules	<a href="https://www.uc.pt/lca/ClusterResources/Navigator/programs">https://www.uc.pt/lca/ClusterResources/Navigator/programs</a>

<b>Platform &amp; Center</b>	<b>Oblivion / Vision - HPC-UE</b>
Installed Software/Modules	<a href="https://oblivion.hpc.uevora.pt/software-stack/">https://oblivion.hpc.uevora.pt/software-stack/</a>  <a href="https://oblivion-docs.readthedocs.io/en/latest/modules.html#available-module">https://oblivion-docs.readthedocs.io/en/latest/modules.html#available-module</a>  <a href="https://vistalab-vision.readthedocs.io/en/latest/software/software_list.html#listof-software-modules">https://vistalab-vision.readthedocs.io/en/latest/software/software_list.html#listof-software-modules</a>

<b>Platform &amp; Center</b>	<b>Cirrus-A - INCD</b>
Installed Software/Modules	<a href="https://wiki.incd.pt/books/software/page/software-list">https://wiki.incd.pt/books/software/page/software-list</a>

- **Contacts for further clarification**

	<b>Bob MACC</b>	<b>Navigator LCA-UC</b>	<b>Oblivion / Vision HPC-UE</b>	<b>Cirrus-A INCD</b>
<b>E-mail</b>	<a href="mailto:help@support.macc.fccn.pt">help@support.macc.fccn.pt</a>	<a href="mailto:helpdesk.lca@uc.pt">helpdesk.lca@uc.pt</a>	<a href="mailto:support@oblivion.uevora.pt">support@oblivion.uevora.pt</a> <a href="mailto:support@vision.uevora.pt">support@vision.uevora.pt</a>	<a href="mailto:helpdesk@incd.pt">helpdesk@incd.pt</a>

## Computational Models: **Scientific Cloud Computing (SCC)** or **Virtual Research Environment (VRE)**

<b>Platform &amp; Center</b>	<b>Stratus - INCD</b>
Type of distribution	openStack
Total Cores	2300 vCPUs
Total memory	7500 TB
File system	ceph
Total storage	220 TB
Max colors per VM	128 vCPUs
Max memory per VM	500TB
Max disk per VM	Variable
Maximum capacity available for 12 months	20 million vCPU.hours
URL for more details	<a href="https://www.incd.pt/?p=servicos/cloud">https://www.incd.pt/?p=servicos/cloud</a>

See more details at: <https://wiki.incd.pt/shelves/cloud-user-documentation>

## Access policies and other useful documents

MACC: <https://docs.macc.fccn.pt/>

INCD: <https://www.incd.pt/?p=acceptable-use-policy> & <https://wiki.incd.pt/>

LCA-UC: <https://www.uc.pt/lca/policy>

HPC-UE: Contact the center directly.

*Last Update 25/10/2022*

