SCALAC

Advanced Computing System for Latin America and the Caribbean

High-Performance Computing Robust Systems Report in Latin America and Caribbean
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Version 1.1

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Summary

High-performance computing (HPC) Infrastructure supports advanced computing applications and research. Different countries have invested in Latin America and the Caribbean via institutions, universities, and special projects. Usually, these investments are made with national funds that are not only their own but also constitute common funds through alliances by partners or foreign programs.

In this reality, investments in robust infrastructure, while not continuous, hold the potential to support a wide range of needs. These needs go beyond simulation and traditional scientific computing, extending to uses such as data analysis, artificial intelligence, and beyond. This potential opens up exciting possibilities for the future of computing in Latin America and the Caribbean.

Starting with Deliverable 2.1 of the RISC-2 project[1], the HPC Observatory has continued for Latin America and the Caribbean, considering the robust HPC infrastructures mapped in these regions and with the infrastructure in which the information is public.

This version of the document High-Performance Computing Robust Systems Report presents the state of these infrastructures in Latin America and the Caribbean, observing both the information collected and compared and other parameters for this report.

The report is organized as follows: section 1 introduces this report, describing the context, the methodology used and a general description of the potentialities in infrastructure in the region. Section 2 shows the list of infrastructure considered in this document following the proposed method, and section 3 contains the final remarks and recommendations for the next version of this report.

[1] Deliverable 2.1., RISC-2 Project (www.risc-2.eu) White Paper on HPC RDI in LATAM https://www.risc2-project.eu/wp-content/uploads/2022/09/RISC2_Deliverable-2.1-White-Paper-on-HPC-RDI-in-LATAM_v1.1-1.pdf

1. Introduction

HPC Infrastructure investment in Latin America has been a topic of discussion. According to an Inter-American Development Bank (IDB) 2 report, massive infrastructure transformation is needed in Latin America and the Caribbean. The report emphasizes efficiency, digital technologies, and a focus on the quality and affordability of consumer services. Latin American and Caribbean countries should invest around 6.2% of their annual Gross Domestic Product (GDP) in infrastructure to meet their needs. However, the actual investment in infrastructure falls short of this target, ranging from 2.3% to 4% of GDP on average[2] [3].

Although Latin American HPC infrastructures have appeared in the Top500[4] for more than ten years, they are mainly located in two main axes: Brazil and Mexico. Taking only from 2010 to 2024, in June 2010, Brazil managed 3 supercomputers in the Top500 hosted by Petrobras[5], INPE[6], and a consortium of three entities NACAD/COPPE/UFRJ[7] and in November 2012, Mexico arrived with an HPC infrastructure hosted by the UNAM[8]. After observing the Top500, several milestones were presented in the region after these entries: in June 2015, ABACUS I[9], a supercomputer hosted by the CINVESTAV in Mexico, became the first new-generation supercomputer installed by mixing CPU and GPUs, and the National Laboratory of Scientific Computing (LNCC)[10] introduced the Santos Dumont[11], the first petaflops machine in the region; in November 2023, Argentina enters the top500 with Clementina XXI, hosted by the SMN[12]; and finally in June 2024, Brazil positions eight (8) supercomputers in the Top500, having supremacy in HPC in Latin America and the Caribbean, and is in position 12 worldwide, below Poland and above the United Arab Emirates.

Brazil's positioning is thanks to both Brazilian public investment (which causes a significant percentage of GDP to go towards this type of investment by law) and private investment. Likewise, thanks to an important scientific activity that not only demands this type of infrastructure but also uses it, creating a meaningful community that maintains a common vision and collaborative policies, national access to HPC infrastructures (via SINAPAD)[13] including even other countries, as is the case with SCALAC.

Outside of the Top500, however, the region has had an interesting dynamic. Without going into details of the GRID projects of the 90's and the beginning of this century, only in the same observation window (from 2012 to date) have there been very interesting referenced achievements: for example, it is no secret to anyone in the HPC community that the ASIC

[2] https://www.cepal.org/en/news/infrastructure-investment-latin-american-and-caribbean-countries-remains-below-needs-region
[3] https://www.wilsoncenter.org/article/latin-america-must-prioritize-infrastructure-spur-economic-growth
[4] https://top500.org/
[5] https://petrobras.com.br/
[6] https://www.gov.br/inpe/pt-br
[7] http://www.nacad.ufrj.br/
[8] https://www.unam.mx/
[9] https://www.abacus.cinvestav.mx/
[10] https://www.gov.br/lncc/pt-br
[11] https://sdumont.lncc.br/
[12] https://www.smn.gob.ar
[13] https://www.lncc.br/sinapad/

infrastructures for Astronomy hosted by the National Laboratory on HPC (NLHPC)[14] of Chile are among the most potent infrastructures in the world[15]. In 2010, Colombia, thanks to the High Performance and Scientific Computing Center (SC3UIS)[16] at Universidad Industrial de Santander[17] in Bucaramanga, in an architectural co-organization and collaboration with HP (today HPE[18]), NVIDIA[19], and INTEL[20], decided to put into operation the first highly dense infrastructure for supercomputing in the region with a continental use: GUANE[21]. This machine (still in operation as continuous integration for testbed addressed to sustainability) became the first infrastructure with 8 NVIDIA HPC GPUs per node for 128 NVIDIA HPC GPUS (and 2 and 6 CPUs by node) and became a reference case for both the integrator (HP) and NVIDIA. The impact was so high that investments in supercomputing in Colombia practically skyrocketed after GUANE, and it became a global test infrastructure for HPE. In 2016, the High-Performance Computing Center at Universidad Nacional de Cordoba in Argentina (CCAD-UNC)[22] led the development of clusters for general scientific and academic use, seeking low cost and sustainability and integrating them into Argentina's national High-Performance Computing system (SNCAD)[23]. Finally, there are three interesting achievements in the region to mention, the first one, in 2018, the University of Guadalajara in Mexico created a unit whose main purpose is data analysis (leaving the supercomputing part as a surname), named Center for Data Analytics and Supercomputing (CADS-UDG)[24] installing a first Fujitsu[25] supercomputer for this purpose, Leoatrox[26]; second, the National Research and Education Network (NREN) in Ecuador, CEDIA[27], launches the first HPC infrastructure based on NVIDIA DGX for uses in Artificial Intelligence (IA) exclusively on a continental level, via SCALAC and RedCLARA[28]; and finally, in 2021, the Brazilian SENAI-CIMATEC[29] together with Atos (today Eviden) also puts into operation and continental use the first quantum simulator in the region (the Learning Quantum Machine Kuatomu).

Although in the previous summary, outside the Top500, the main milestones documented by the community were mentioned, some other investments and implementations have not been taken into account, either due to their low real impact on the specialized community or the false sizing of the owners or promotors of the infrastructure projects, or because these are private projects that cannot be publicized, such as those of some oil, banking, and military companies, which, to the knowledge of the authors of this document, would even be within the Top500 said infrastructures.

With this panorama, it has been proposed from the HPC Observatory for Latin America and the Caribbean to carry out an inventory of strategic infrastructure following a methodology presented below.

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[14] https://www.nlhpc.cl/
[15] The Top500 only considers general-purpose machines, but if this were not, these supercomputers in Chile would be on that list.
[16] https://www.sc3.uis.edu.co
[17] https://www.uis.edu.co
[18] https://www.hpe.com/
[19] https://www.nvidia.com/
[20] https://www.intel.com/
[21] https://es.wikipedia.org/wiki/Guane-1_(supercomputador)
[22] https://ccad.unc.edu.ar/
[23] https://www.argentina.gob.ar/ciencia/redes/sistemasnacionales/cad
[24] http://cads.cgti.udg.mx/
[25] https://www.fujitsu.com/
[26] https://es.wikipedia.org/wiki/Leo_Atrox
[27] https://cedia.edu.ec/
[28] https://www.redclara.net
[29] https://www.senaicimatec.com.br/

1.1. Methodology

The list was built mainly based on the information sent by the technology heads, directors, or technological administrators of different sites, information pre-collected by the RISC-2 HPC Observatory, and information also collected by SCALAC and RedCLARA. The information requested included not only technical aspects and real and theoretical measurements (estimated according to methodologies given by the manufacturers and integrated) in terms of computing but also storage and connectivity (basically, if it was connected by a National Academic Network).

The information was confidentially obtained by the sellers, based on equally confidential information from the manufacturers and integrators, and in other cases, where even so, the information was considered to have potential bias, tests, and exact data were requested from independent administrators and engineers.

The information then requested to compile the list was the following:

- Institution
- Country
- City
- Institution (Including Type of Institution)
- Web (URL)
- Type of HPC Infrastructure (Cluster or other)
- Manufacturer
- Technological Description
- Cores CPU/GPUs
- CPU/GPU Tech Processor Type
- # Processors Cores by Processors (CPUs and GPUs)
- Interconnection
- RAM per Node (GB)
- Total Memory (GB)
- Year of implementation
- # Nodes
- # Racks
- Cooling Type
- Power consumption (KW)
- Operative System
- Theoretical TeraFlops
- Real TeraFlops (Only with HPL)
- Applications
- Number and Type of Users
- Contact
- Seller
- Storage Information
    - Manufacturer
    - Description
    - Capacity (TB)

Once the information has been processed, its visibility is verified (for example, if the owning institutions publicly display the information and if there are doubts, it is requested directly from the entities that own the machine). Then, the information is cosigned, and the measured and analyzed results are collected to publish in different SCALAC reports linked with the HPC Observatory for Latin America and the Caribbean and to be used in further analysis.

Considering this information, information was collected from about 127 robust infrastructures in Latin America and the Caribbean. First, those infrastructures whose information, despite being verified, could not be public (as mentioned above, military projects, private companies, and strategic sectors, among others) were eliminated. Subsequently, obsolete infrastructures and those not installed or updated before 2012 were eliminated[30]. Technically, a relationship was measured between the number of nodes, number of processors per node, number of cores per node, and minimum performance, whether theoretical or measured, and verified observing the technology was considered. This listing only considers compute-related measurements and is limited to a minimum theoretical performance of 50 TeraFlops (TFlops).

For this report, the metrics and technical features presented in the HPC Infrastructure List are:

- Institution
- Country
- Institution type (Public, Private or Mixte)
- Web (URL)
- Manufacturer
- Cores CPU
- Number of GPUs
- GPU Technology
- Processor Type
- Interconnection
- Year of Implementation
- Theoretical TFlops (GPU (FP32) + CPU)
- Measured TFlops (HPL using LinPack[31])

Only 29 institutions from 9 countries with 41 reference HPC platforms were left for this report. Of these institutions, only 11 (eleven) are part of SCALAC, and seven (7) directly guarantee connectivity through a national network or RedCLARA. In the present list, 12 institutions are public; three (3) are public-military (which, although they advertise their infrastructure, have restricted access for RDI projects); three (3) are mixed in nature (public-private in nature); five (5) are private. Of the 41 reference infrastructures, one (1) is exclusively for use in Artificial Intelligence, and 40 are offered for mixed-use (AI, Simulation, Data Analytics, Visualization).

It is also important to remember that the list only considered information that could be verified. The different entities often provided erroneous information (critically), so the technical committee decided to remove it from the list. In the same way, although there were institutions that sent information on infrastructure tendered and in the purchasing process, for this report, only installed capacity until June 1, 2024, was considered in the report.

[30] In this sense, it is important to mention that in the region there are a dozen infrastructures installed between 2010 and 2012 that have been continually updated and strengthened in the observation window with considerable use.
[31] https://top500.org/project/linpack/

1.2. About SCALAC

SCALAC is the advanced computing system for Latin America and the Caribbean, created on March 1, 2012, as a regional alliance with the support of national education and research networks grouped by RedCLARA. In 2018, it was formalized as an international civil society with legal headquarters in Costa Rica.

Strategically, SCALAC is the alliance that combines advanced computing capabilities and knowledge for Latin America and the Caribbean. Its vision is to be a non-profit organization that supports and promotes the development of advanced computing (called supercomputing, quantum computing) in Latin America and the Caribbean to guarantee not only the reduction of gaps, technological autonomy, and data sovereignty but also collaboration around regional needs and expectations and equal integration with global partnership as peers.

2. HPC Robust Infrastructure List

The following list does not rank capabilities, performance, or supremacy. It only presents the capacities by country, according to the methodology explained above and the guidelines followed by the SCALAC team.

Institution	*Country*	*Institution type*	*Web (URL)*	*Manufacturer*	*Cores CPU*	*# GPUs*	*GPU Tech*	*Processor Type*	*Interconnexion*	*Year*	*Theoretical TFlops (GPU (FP32) + CPU)*	*TFlops (HPL)*
Servicio Meterologico Nacional	Argentina	Public	https://www.smn.gob.ar/	LENOVO	43008	0	None	Xeon Max 9462 32C 2.7GHz	Infiniband NDR400	2023	6133,76	3973,12
CCAD-UNC	Argentina	Public	https://ccad.unc.edu.ar/equipamiento/cluster-mendieta/cluster-mendieta-fase-2/	Supermicro	440	44	NVIDIA A30	Intel Xeon E5-2680v2	Infiniband 40 GB	2021	462,825	
			https://ccad.unc.edu.ar/equipamiento/cluster-serafin/	Supermicro	4096	0	None	AMD EPYC 7532	Infiniband 100 GB	2021	19,04	

			https://ccad.unc.edu.ar/equipamiento/cluster-eulogia/	Intel	2048	0	None	Xeon Phi 7210	Infiniband 40 GB	2017	83,1875	
			https://ccad.unc.edu.ar/equipamiento/cluster-mulatona/	Supermicro	224	0	None	Intel Xeon E5-2683v4	Infiniband 40 GB	2016	7,35	
Universidad Mayor de San Simón	Bolivia	Public	www.umss.edu.bo	DELL	480	2	NVIDIA TESLA	None	Infiniband 100 GB	2020	28	
Petróleo Brasileiro S.A	Brasil	Private	https://www.petrobras.com.br/	EVIDEN	233856		NVIDIA A100	AMD EPYC 7513	Infiniband HDR	2022	43008	19527,68
				EVIDEN	188224		NVIDIA TESLA V100	Xeon Gold 6230R	Infiniband EDR	2021	14346,24	9195,52
				DELL EMC	84480		NVIDIA A100	AMD EPYC 74F3	Infiniband	2023	14059,52	7137,28
				EVIDEN	91936		NVIDIA TESLA V100	Xeon Gold 6240	Infiniband EDR	2020	9062,4	4485,12
				DELL EMC	42240		NVIDIA A100	AMD EPYC 74F3	Infiniband	2023	7024,64	3952,64
				EVIDEN	60480		NVIDIA TESLA V100	Xeon Gold 5122	Infiniband EDR	2019	5498,88	3235,84
SiDi	Brasil	Private	https://www.sidi.org.br/	NVIDIA	24800		NVIDIA A100	AMD EPYC 7742	Infiniband	2021	4229,12	37053,84

Software Company MBZ	Brasil	Private		LENOVO	80640			Xeon Platinum 8280	100G Ethernet	2022	7137,28	3635,2
		Private		LENOVO	61440			Xeon Gold 6252	100G Ethernet	2021	4229,12	2140,16
Universidade Federal Do Pará	Brasil	Public	www.ccad.ufpa.br	HPE	812	1	NVIDIA V100 32 GB	Intel Xeon-Gold 5119T	Infiniband, Gigabit Ethernet	2021	35,875	
Santos Dumont	Brasil	Public	https://sdumont.lncc.br/	Eviden	4752	198	NVIDIA K40	Intel Xeon E5-2695v2	Infiniband FDR (56Gb/s)	2014 2019		51122,4
					1296	54	XEON PHI	Intel Xeon E5-2695v2				
					240	0	None	Intel Xeon Ivy Bridge				
					11808	0	None	Intel Xeon Cascade Lake Gold 6252				
					1728	0	None	Intel Xeon Cascade Lake Gold 6252				
					4512	376	NVIDIA V100 32 GB	Intel Xeon Cascade Lake Gold 6252				

					40	8	NVIDIA V100 16 GB	Intel Xeon Skylake Gold 6148				
					12096	0	None	Intel Xeon E5-2695v2				
					36472	***636***	[redacted]					***51122,4***
Centro Nacional de Processamento de Alto Desempenho em São Paulo	Brasil	Public	https://www.cenapad.unicamp.br/	DELL	9376	10	NVIDIA A100	AMD Epyc 7662		2021	388	
						0	None	AMD Epyc 7662				
						0	None	AMD Epyc 7H12	Infiniband			
						0	None	AMD EPYC 7443		2023		
Laboratorio Nacional de Supercomputación /Universidad de Chile	Chile	Public	www.nlhpc.cl	LENOVO	7104	0	None	AMD EPYC 9754	InfiniBand NDR a 400Gbits/s	2024		270
						12	AMD Instinct MI210	AMD EPYC 9224				
						0	None	AMD EPYC 9224				
				DELL	2852	4	NVIDIA V100 32 GB	Intel Xeon Gold 6152		2019		196
						2	AMD Instinct MI100	AMD EPYC 7713				

						0	None	Intel Xeon Gold 6152				
						0	None	Intel Xeon Gold 6152				
				HPE	None	0	None	Intel Xeon E5-2660 v2		2014		44
					9956	***18***						***510***
Fuerza Aerea Colombiana	Colombia	Public - Militar	https://www.fac.mil.co/	HPE Cray	512	0	None	EPYC AMD 9354	Slingshot 200 GB. Switch Slingshot	2023	52	
Policía Nacional de Colombia	Colombia	Public - Militar	https://www.policia.gov.co/	HPE Cray	1024	16	NVIDIA H100 80 GB	EPYC AMD 9354	Infiniband 100 GB. Switch de 40 puertos	2024	920	
Seguridad Nacional Colombia	Colombia	Public - Militar		HPE Cray	1024	16	NVIDIA L40S 48 GB	EPYC AMD 9354	Infiniband 100 GB. Switch de 40 puertos	2024	1569,6	
Universidad de Ibagué	Colombia	Public	https://www.unibague.edu.co/	HPE Cray	2048	16	NVIDIA H100 80 GB	EPYC AMD 9354	Infiniband 100 GB. Switch de 40 puertos	2024	1024	

Telco Colombia	Colombia	Public		HPE Cray	2048	16	NVIDIA H100 80 GB	EPYC AMD 9354	Infiniband 100 GB. Switch de 40 puertos	2024	1024	
Universidad de Cartagena	Colombia	Public	hpc.unicartagena.edu.co	HPE	1328	1	NVIDIA A100	Intel Xeon-Gold 5315Y	Infiniband SWITCH, 1 x ARUBA 1Gb fast-ETH	2023	36,6125	
							None	Intel Xeon-Gold 5320				
							None	Intel Xeon-Gold 5317				
Universidad de los Andes Colombia	Colombia	Private	https://uniandes.edu.co/	DELL	64	6	NVIDIA RTX6000	Intel Xeon Gold 6226R	Infiniband, Switch Mellanox Quantum HDR	2022	1,9	
					144		None	AMD EPYC 7402			7,32421875	
					96		None	AMD EPYC 7402			4,8828125	
					48		None	AMD EPYC 7402			2,44140625	
					400		None	Intel Xeon Gold 6242R			13,75	
					752						***30,2984375***	
SC3UIS	Colombia	Public	https://www.sc3.uis.edu.co	HPE	1440	40	NVIDIA Tesla M2050 3GB	Intel Xeon CPU E5645	Infiniband 40 GB	2014		105

						24	NVIDIA Tesla M2050 3GB	Intel Xeon CPU E5640				
						64	NVIDIA Tesla M2075 5G	Intel Xeon CPU E5645			105	
					32	2	NVIDIA GeForce GTX Titan X 12 GB	Intel Xeon CPU X7560		2019	13,3516016	
					64	2	NVIDIA TESLA K20	Intel Xeon CPU E7-8867 v3		2016	8,1328125	
					6	1	NVIDIA GeForce GTX Titan X 12 GB	Intel Xeon CPU E5-2609 v3	Ethernet	2018	6,89042969	
				DELL	128	1	AMD Instinct MI210	AMD EPYC 9554		2023	35	27,716
				Supermicro	128	2	AMD Instinct MI210	AMD EPYC 9534		2023	57,6	47,781
					1798	***136***					***225,974844***	***180,497***
					144	0		Intel(R) Xeon(R) CPU E5-2670			2,925	
BIOS	Colombia	Mixte	https://www.bios.co/	HPE	32	0		Intel(R) Xeon(R) CPU E5-4650	Conexión por Infiniband para trasferencia de datos a alta velocidad (26GBps) Conexión a GE para comunicación de redes	2013	0,675	
					32	4	GPU Nvidia Tesla K20	Intel(R) Xeon(R) CPU E5-2670			0,65	

					60	0		Intel Xeon Phi Coprocessor 5110P			2	
					16	0		Intel(R) Xeon(R) CPU E5-2670			0,65	
				Inspur	560	0		Intel Xeon 6132	Conexión por Infiniband para trasferencia de datos a alta velocidad (56GBps) Conexión a 10GE y GE para comunicación	2019	29,75	
					176	0		Intel Xeon E7-8880 v4			6,05	
					256	0		Intel Xeon PHI 7210			10,648	
					84	12	TESLA P100 NVLINK	Intel Xeon 6132			131,6625	
					1360	***16***					***185,0105***	***0***
Centro Nacional de Alta Tecnología (CeNAT)	Costa Rica	Mixte	https://kabre.cenat.ac.cr	DELL	2608	4	NVIDIA K40	Xeon Silver	10 Gb	2016	17,16	
						4	NVIDIA V100 32 GB	Xeon Gold			56	
						0	None					
						0	None					
				Supermicro		0	None					
						0	None					
						0	None					
						0	None					
					2608	***8***					73,16	

CEDIA	Ecuador	Mixte	www.cedia.edu.ec	NVIDIA	384	24	NVIDIA A100 40 GB	AMD EPYC 7742	Ethernet	2019	1445,76	
Universidad Autónoma de México	México	Public	https://www.unam.mx/	HPE Cray	8192	64	NVIDIA H100 80 GB	EPYC AMD 9354	Infiniband 100 GB. Switch de 40 puertos	2024	4110,08	
Universidad de Guadalajara	México	Public	https://cgsait.udg.mx/es/cads	FUJITSU	5400	2	NVIDIA TESLA P100	Intel Xeon-6154	Intel Omni-Path	2018	504	
						0	None	Intel Xeon-6154				
						0	None	Intel Xeon-6154				

ABACUS el Laboratorio de Matemática Aplicada y Cómputo de Alto Rendimiento del Centro de Investigación y de Estudios Avanzados del IPN	México	Public	https://www.abacus.cinvestav.mx	SGI Silicon Graphics Inc	7680	100	NVIDIA K40m	Intel Xeon 2690v3	Infiniband FDR		816,6	430
Instituto Nacional de Investigaciones Nucleares	México	Public	https://www.gob.mx/inin/	NVIDIA	40	8	NVIDIA V100 32 GB	Xeon E5-2697v3	None	0	121	
Centro Nacional de Supercomputo del IPICYT	México	Public	https://cns.ipicyt.edu.mx/	BULL ATOS	2736	16	NVIDIA P100	Intel Xeon Skylake 6130	Ethernet 1 Gb/s, Infiniband EDR 100 Gb/s	2017	179	
Laboratorio Naciolan de Supercómputo del Suerte - BUAP	México	Public	https://lns.buap.mx/	FUJITSU	2568	0	None	Intel Xeon Haswell	Infiniband FDR (56 Gbps)	2015	225	

				FUJITSU	3060	8	NVIDIA GTX 1080 Ti 11GB	Intel Knights Landing MIC	Omnipath		135	
Universidad Autónoma del Estado de México	México	Public	https://mandra.uaemex.mx/	TYAN	0	0	None	Intel Xeon Gold 6148	Infiniband/Ethernet	2022	100	
				DELL	0	19	NVIDIA	None		2024		
Centro Nacional de Supercomputación	Uruguay	Mixte	https://cluster.uy	HPE	2240	29	NVIDIA P100	Xeon Gold 6138	Ethernet 10 Gbps	2018	592,55	
						2	NVIDIA A100	Xeon Gold 6138			42,25	
						0	None	Xeon Gold 6138			35,75	
				DELL		4	NVIDIA A40	AMD EPYC 7642			149,810313	
					2240	***35***					820,360313	

Bolivia is in red and remains on the list because it is the most important verified platform in the country.

3. Final Remarks

The list shows the verified high-performance computing capabilities in Latin America and the Caribbean, which is quite important, as the document shows. Beyond the machines recognized as Top500 (today, according to the June 2024 list, concentrated in Brazil and with the inclusion of the Argentine Clementina XXI machine), in the region, there are interesting infrastructures that mainly support hybrid research needs in scientific computing, data analytics, and artificial intelligence. In that order of ideas, only the machine in Ecuador at CEDIA was designed to support AI and Data Analytics exclusively.

If countries are classified in computing supremacy, Brazil has a very high difference compared to the following countries. Later, Argentina (beyond Clementina XXI), Mexico in third place, Chile, Colombia, Costa Rica, and Uruguay very close, and according to this list, Ecuador and Bolivia. This of course does not mean a classification of which is better but rather takes into account installed high-performance computing capacity. In a subsequent report, the impact and significance of the HPC activity will also be considered.

Although there is no clear roadmap for implementing robust infrastructure for HPC in Latin America and the Caribbean, there is an essential investment in technology, which, as is the global trend, comes from the public sector. Equally important is the percentage of private investments. It is important to mention that although this list considers implementation, the relationship of performance and technology implemented, and the destination of use (academic, private), the effective use of the installed HPC platform and its relationship with performance will be considered in a second report.

Finally, it's worth noting that while the information comparison didn't yield many surprises, it is concerning that performance may be inflated, real capabilities may be estimated or overvalued, and the method for calculating and measuring the performance of an HPC platform may be unclear. This issue is of particular concern to SCALAC, as misinformation can undermine the credibility of investment decision-makers and governments, erode the trust of the specialized international community in a specific country, and lead to erroneous investments and facilities that do not contribute to the responsible formation of robust capabilities to support high-performance computing.

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