Cineca: utilizzo CSN e prospettive 2026

Leonardo Cosmai

Frascati, 4 Settembre 2025

Risorse di calcolo HPC: una breve storia

- **~1985-1995:** Cray 1M, Cray X-MP/12-48, Cray Y-MP, Cray T3D/64 (CINECA)
- **~1985-2010:** APE, APE100, APEmille, apeNEXT
- **~2009:** cluster locali (BA, CT, MIB, PI), cluster CSN4 (Zephiro)
- **2012:** nuova convenzione Cineca-INFN

CRAY Y-MP UNICOS operating system ~2 GFlop/s 1024 MB SRAM

	APE (1988)	APE100(1993)	APEmille (1999)	apeNEXT (2003-)
Architecture	SIMD	SIMD	SIMD	SPMD
# nodes	16	2048	2048	4096
Topology	flexible 1D	rigid 3D	flexible 3D	flexible 3D
Memory	256 MB	8 GB	64 GB	1 TB
# registers (width)	64 (32 bit)	128 (32 bit)	512 (32 bit)	512 (64 bit)
clock speed	8 MHz	25 MHz	66 MHz	200 MHz
Total Computing Power of all	1.5 GFlops	250 GFlops	2 TFlops	8-20 TFlops

ISTITUTO NAZIONALE DI FISICA NUCLEARE

CONSIGLIO DIRETTIVO

DELIBERAZIONE N. 12439

Il Consiglio Direttivo dell'Istituto Nazionale di Fisica Nucleare, riunito in Roma in data 26 luglio 2012 alla presenza di n. 33 dei suoi componenti su un totale di n. 34;

DELIBERA

Di approvare lo schema di "Accordo Attuativo tra l'Istituto Nazionale di Fisica Nucleare e il CINECA per lo svolgimento di attività di ricerca e sviluppo nel settore delle simulazioni numeriche e sviluppo di algoritmi e applicazioni di fisica teorica", allegato e che fa parte integrante della presente deliberazione. Il Presidente o persona da lui delegata, è autorizzato a negoziarlo e firmarlo.

Il CINECA si impegna a:

a) garantire a INFN l'utilizzo di 100 Milioni di core hours all'anno di calcolo sul sistema Blue Gene /Q;
b) garantire l'accesso ai sistemi prototipali per il supercalcolo che saranno via via resi disponibili dal CINECA per attività di sperimentazione e sviluppo;

IBM BLUE GENE/Q FERMI

(~ Sep 2012 - Jul 2016)

Architecture: IBM BlueGene/Q
Model: 10 racks
Processor Type: IBM PowerA2, 1.6 GHz
Computing Cores: 163840
Computing Nodes: 10240, 16 core each
RAM: 16 GB/node, 1GB/core
Internal Network: custom with 11 links -> 5D Torus
Disk Space: 2.6 PB of scratch space
Peak Performance: 2PFlop/s

IBM BLUE GENE/Q FERMI ~100 Mcorehours/year (~ Sep 2012 - Jul 2016)

Assegnazioni FERMI 2015

9 progetti di calcolo

I.S.	referente	richiesta (corehours)	assegnazione (corehours)	% assegnazioni	% consumi (da saldo 20140201 a 20150414)	% assegnazioni/ richieste	(%assegnazioni)/ (%consumi)	assegnazioni preliminari a gennaio 2015	differenze da assegnare (su budget 100 Mcorehurs)	assegnaz... (normalizzate a 80 Mcorehours)
BIOPHYS	Silvia Morante	4,500,000	3,500,000	3.50	1.78	0.78	1.97	960,000	2,540,000	1,840,000
FBS	Michele Viviani	4,000,000	2,000,000	2.00	1.63	0.50	1.23	920,000	1,080,000	680,000
FIELDTURB	Alessandra Lanotte	5,000,000	3,500,000	3.50	3.35	0.70	1.04	1,760,000	1,740,000	1,040,000
FTeCP	MariaPaola Lombardo	19,000,000	14,000,000	14.00	5.47	0.74	2.56	2,640,000	11,360,000	8,560,000
LQCD123	Silvano Simula	35,000,000	22,000,000	22.00	21.06	0.63	1.04	9,440,000	12,560,000	8,160,000
MANYBODY	Francesco Pederiva	500,000	500,000	0.50	0.43	1.00	1.17	200,000	300,000	200,000
NPQCD	Leonardo Cosmai	32,000,000	22,000,000	22.00	26.72	0.69	0.82	9,440,000	12,560,000	8,160,000
QCDLAT	Michele Pepe	35,000,000	22,000,000	22.00	27.04	0.63	0.81	9,440,000	12,560,000	8,160,000
TEONGRAV	Roberto De Pietri	16,500,000	10,500,000	10.50	12.52	0.64	0.84	5,200,000	5,300,000	3,200,000
TOTALE		**151,500,000**	**100,000,000**	**100.00**	**100.00**	**0.66**		**40,000,000**	**60,000,000**	**40,000,000**

Documento “white paper” sul calcolo HPC INFN del 2017

Computational theoretical physics at INFN: status and perspectives (2018-2020)

R. Alfieri, B. Alles, S. Arezzini, S. Bernuzzi, L. Biferale, G. Boffetta*, C. Bonati, G. Brancato, C.M. Carloni Calame, M. Caselle, P. Cea, A. Ciampa, M. Colpi, L. Cosmai*, L. Coraggio, G. de Divitiis, M. D’Elia*, R. De Pietri*, E. De Santis, C. Destri, G. Di Carlo, P. Dimopoulos, F. Di Renzo, A. Drago*, P. Faccioli, R. Frezzotti*, A. Gamba, A. Gargano, B. Giacomazzo, L. Giusti*, G. Gonnella, N. Itaco*, A. Kievsky, G. La Penna, A. Lanotte*, W. Leidemann, M. Liguori*, M.P. Lombardo*, A. Lovato, V. Lubicz, L.E. Marcucci, E. Marinari, G. Martinelli*, A. Mazzino, E. Meggiolaro, V. Minicozzi, S. Morante*, P. Natoli*, F. Negro, M. Nicodemi*, P. Olla, G. Orlandini, M. Panero*, P.S. Paolucci*, A. Papa*, G. Parisi*, F. Pederiva*, A. Pelissetto, M. Pepe, F. Piccinini*, F. Rapuano, G.C. Rossi, G. Salina, F. Sanfilippo, S.F. Schifano*, R. Schneider, S. Simula*, A. Sindona*, F. Stellato, N. Tantalo, C. Tarantino, G. Tiana, R. Tripiccione*, P. Vicini*, M. Viel, M. Viviani*, T. Vladikas, M. Zamparo

* *Conveners*

(Dated: April 26, 2017)

We present the status of computational theoretical physics at INFN, the results obtained by its research groups active in this field and their research programs for the next three years. Computational theoretical physics, besides its own importance, is a powerful tool in understanding present and future experiments. A continued support of INFN to computational theoretical physics is crucial to remain competitive in this sector. We assess the high performance computing resources needed to undertake the research programs outlined for the next three years.

2018: 16 progetti di calcolo

PROGETTI INFN 2018

MARCONI "A1" 2018		MARCONI "A2" 2018		MARCONI "A3" 2018		GESTORI DEGLI ACCOUNT	
account	assegnazione (corehours)	account	assegnazione (corehours)	account	assegnazione (corehours)	PI	
INF18_FBS_0	200,000	INF18_FBS_1	1,000,000	INF18_FBS_2	1,500,000	Michele Viviani	INFN Pisa
INF18_biophys_0	600,000	INF18_biophys_1	2,500,000	INF18_biophys_2	2,000,000	Silvia Morante	Univ. Roma Tor Vergata
INF18_fldturb_0	700,000	INF18_fldturb_1	9,000,000	INF18_fldturb_2	11,000,000	Guido Boffetta	Univ. Torino
INF18_lqcd123_0	1,300,000	INF18_lqcd123_1	26,000,000	INF18_lqcd123_2	35,000,000	Silvano Simula	INFN Roma Tre
INF18_manybody_0	200,000	INF18_manybody_1	1,500,000	INF18_manybody_2	1,500,000	Alessandro Lovato	INFN TIFPA
INF18_nemesys_0	150,000	INF18_nemesys_1	800,000	INF18_nemesys_2	550,000	Antonio Sindona	Univ. Calabria
INF18_npqcd_0	1,100,000	INF18_npqcd_1	25,000,000	INF18_npqcd_2	35,000,000	Massimo D'Elia	Univ. Pisa
INF18_qcdlat_0	1,300,000	INF18_qcdlat_1	25,000,000	INF18_qcdlat_2	35,000,000	Leonardo Giusti	Univ. Milano Bicocca
INF18_qfthep_0	200,000	INF18_qfthep_1	2,000,000	INF18_qfthep_2	6,000,000	Mariapaola Lombardo	INFN LNF
INF18_sft_0	400,000	INF18_sft_1	4,500,000	INF18_sft_2	7,000,000	Marco Panero	Univ. Torino
INF18_strength_0	50,000	INF18_strength_1	600,000	INF18_strength_2	500,000	Nunzio Itaco	INFN Napoli
INF18_teongrav_0	1,000,000	INF18_teongrav_1	11,000,000	INF18_teongrav_2	12,500,000	Bruno Giacomazzo	Univ. Trento
INF18_test_0	100,000	INF18_test_1	400,000	INF18_test_2	800,000	Leonardo Cosmai	INFN Bari
INF18_indark_0	400,000	***INF18_indark_1***	100,000	***INF18_indark_2***	2,500,000	Paolo Natoli	Univ. Ferrara
INF18_neumatt_0	1,000,000	***INF18_neumatt_1***	10,000,000	***INF18_neumatt_2***	12,500,000	Roberto De Pietri	Univ. Parma
INF18_qftatcolliders_0	200,000	***INF18_qftatcolliders_1***	0	***INF18_qftatcolliders_2***	200,000	Carlo Carloni Calame	INFN Pavia
INF18_disordered_0	100,000	***INF18_disordered_1***	600,000	***INF18_disordered_2***	450,000	Elena Pastorelli	INFN Roma 1
TOTALE	***9,000,000***	***TOTALE***	***120,000,000***	***TOTALE***	***164,000,000***		

	A1	A2	A3
Model	Lenovo NeXtScale	Lenovo Adam Pass	Lenovo Stark
Racks	10	50	45
Nodes	1512 (reduced to 720)	3600	2982 (reduced to 1311)
Processors	2 x 18-cores Intel Xeon E5-2697 v4 (Broadwell) at 2.30 GHz	1 x 68-cores Intel Xeon Phi 7250 CPU (Knights Landing) at 1.40 GHz	2 x 24-cores Intel Xeon 8160 CPU (Skylake) at 2.10 GHz
Accelerators	-	-	-
Cores	36 cores/node, 25.920 cores in total	68 cores/node (272 with HyperThreading), 244.800 cores in total	48 cores/node
RAM	128 GB/node, 3.5 GB/core	16 GB/node of MCDRAM and 96 GB/node of DDR4	192 GB/node of DDR4
Peak Performance	single node: 1.3 TFlop/s, 2 PFlop/s in total	single node: 3.0 TFlop/s, 11 PFlop/s in total	single node: 2.2 TFlop/s, 6.4 PFlop/s in total
Internal Network	Intel Omnipath, 100 Gb/s		
	Core Switches: 5 x OPA Core Switch "Sawtooth Forest", 768 ports each. **Edge Switch**: 216 OPA Edge Switch "Eldorado Forest", 48 ports each.		

GALILEO

account	assegnazione (corehours)
INF17_FBS	250,000
INF17_biophys	1,600,000
INF17_fldturb	2,000,000
INF17_fusion	250,000
INF17_lqcd123	1,400,000
INF17_manybody	100,000
INF17_nemesys	700,000
INF17_npqcd	2,300,000
INF17_qcdlat	2,600,000
INF17_qfthep	250,000
INF17_sft	250,000
INF17_strength	150,000
INF17_teongrav	3,060,000
INF17_test	90,000
TOTALE	***15,000,000***

GALILEO	Intel Haswell 2 x Intel Xeon 2630 v3 @2.4GHz 8 cores each	8384 / 524	128 GB

2020: 20 progetti di calcolo

MARCONI "A3" (skylake)

169 Mcorehours

MARCONI "A3" (skl) 25 Gennaio 2021					
account	budget (corehours)	consumo (corehours)	consumo /budget (%)	residuo (corehours)	residuo%
INF20_FBS	1,930,000	1,930,453	100.02	-453	-0.02
INF20_biophys	2,190,000	2,195,372	100.25	-5,372	-0.25
INF20_disorder	105,500	9	0.01	105,491	99.99
INF20_euclid	3,053,000	1,084,199	35.51	1,968,801	64.49
INF20_fldturb	11,585,000	10,176,062	87.84	1,408,938	12.16
INF20_indark	2,235,000	1,452,919	65.01	782,081	34.99
INF20_lqcd123	35,650,000	35,895,679	100.69	-245,679	-0.69
INF20_lspe_0	122,500	481	0.39	122,019	99.61
INF20_manybody	1,840,000	1,798,454	97.74	41,546	2.26
INF20_nemesys	562,000	528,331	94.01	33,669	5.99
INF20_neumatt	11,300,000	10,394,869	91.99	905,131	8.01
INF20_npqcd	35,650,000	35,990,061	100.95	-340,061	-0.95
INF20_qcdlat	35,650,000	35,383,721	99.25	266,279	0.75
INF20_qftatcol	9,000	0	0.00	9,000	100.00
INF20_quantum	409,000	516,347	126.25	-107,347	-26.25
INF20_sft	2,896,000	2,954,917	102.03	-58,917	-2.03
INF20_sim	6,036,500	5,987,693	99.19	48,807	0.81
INF20_strength	519,000	534,739	103.03	-15,739	-3.03
INF20_teongrav	13,707,000	13,574,603	99.03	132,397	0.97
INF20_test	1,505,500	551,694	36.65	953,806	63.35
INF20_virgo	2,045,000	2,047,780	100.14	-2,780	-0.14
TOTALE	***169,000,000***	***162,998,383***	***96.45***	***6,001,617***	***3.55***

MARCONI 100

980 nodes

- **Processors**: 2 x IBM Power9 @ 2.6 (3.1) GHz
- **Cores**: 16 cores per processor, totaling 32 cores per node
- **Hardware Threads**: 4 threads per core (SMT), providing 64 threads per node
- **Accelerators**: 4 x NVIDIA V100 GPUs with NVLink 2.0
- **RAM**: 256 GB per node
- **Local Storage**: 1.6 TB NVMe
- **Peak Performance**: 32 PFlops
- **Network**: Mellanox InfiniBand EDR DragonFly+

10 Mcorehours

Marconi100 - 25 Gennaio 2021					
account	budget (corehours)	consumo (corehours)	consumo /budget (%)	residuo (corehours)	residuo%
INF20_FBS_0	11,000	7,049	64.08	3,951	35.92
INF20_biophys_0	112,000	109,776	98.01	2,224	1.99
INF20_disorder_0	1,000	0	0.00	1,000	100.00
INF20_euclid_0	160,000	104,772	65.48	55,228	34.52
INF20_fldturb_0	558,000	82,321	14.75	475,679	85.25
INF20_indark_0	128,000	784	0.61	127,216	99.39
INF20_lqcd123_0	1,902,000	4,407,976	231.75	-2,505,976	-131.75
INF20_lspe_1	4,000	0	0.00	4,000	100.00
INF20_manybody_0	96,000	4,688	4.88	91,312	95.12
INF20_nemesys_0	32,000	78,874	246.48	-46,874	-146.48
INF20_neumatt_0	22,000	0	0.00	22,000	100.00
INF20_npqcd_0	1,902,000	1,759,508	92.51	142,492	7.49
INF20_qcdlat_0	1,902,000	2,089,724	109.87	-187,724	-9.87
INF20_qftatcol_0	2,000	0	0.00	2,000	100.00
INF20_quantum_0	10,000	464	4.64	9,536	95.36
INF20_sft_1	160,000	78,072	48.80	81,928	51.21
INF20_sim_0	306,000	288,152	94.17	17,848	5.83
INF20_strength_0	32,000	51,660	161.44	-19,660	-61.44
INF20_teongrav_0	672,000	769,093	114.45	-97,093	-14.45
INF20_test_1	1,000,000	592,094	59.21	407,906	40.79
INF20_virgo_1	1,100,000	1,502,492	136.59	-402,492	-36.59
TOTALE	***10,112,000***	***11,927,499***	***117.95***	***-1,815,499***	***-17.95***

2022

MARCONI "A3" (skylake)

60 Mcorehours

MARCONI (A3)								
da	*8-Feb-2022*	*a*	*14-February-2023*	*#giorni*	*371*			
account	budget (corehours)	consumo (corehours)	consumo/budget (%)	residuo (corehours)	residuo%	#giorni	consumo linearizzato (su 12 mesi)	consumo/ (consumo linearizzato) %
INF22_biophys	2,750,000	1,469,272	53.43	1,280,728	46.57	371	2,795,205	*52.56*
INF22_enesma	50,000	0	0.00	50,000	100.00	371	50,822	*0.00*
INF22_euclid	1,100,000	627,670	57.06	472,330	42.94	371	1,118,082	*56.14*
INF22_fldturb	4,150,000	4,134,415	99.62	15,585	0.38	371	4,218,219	*98.01*
INF22_gagra	200,000	33,839	16.92	166,161	83.08	371	203,288	*16.65*
INF22_indark	1,450,000	1,269,025	87.52	180,975	12.48	371	1,473,836	*86.10*
INF22_lhc	10,000	0	0.00	10,000	100.00	371	10,164	*0.00*
INF22_lqcd123	7,000,000	4,233,813	60.48	2,766,187	39.52	371	7,115,068	*59.50*
INF22_lspe	1,100,000	918,667	83.52	181,333	16.48	371	1,118,082	*82.16*
INF22_monstre	1,000,000	407,233	40.72	592,767	59.28	371	1,016,438	*40.06*
INF22_nemesys	500,000	427,207	85.44	72,793	14.56	371	508,219	*84.06*
INF22_neumatt	2,100,000	1,666,529	79.36	433,471	20.64	371	2,134,521	*78.08*
INF22_npqcd	13,000,000	7,186,742	55.28	5,813,258	44.72	371	13,213,699	*54.39*
INF22_nucsys	810,000	704,555	86.98	105,445	13.02	371	823,315	*85.58*
INF22_qcdlat	14,260,000	13,560,158	95.09	699,842	4.91	371	14,494,411	*93.55*
INF22_qftatcol	100,000	0	0.00	100,000	100.00	371	101,644	*0.00*
INF22_quantum	250,000	0	0.00	250,000	100.00	371	254,110	*0.00*
INF22_sft	2,830,000	2,589,217	91.49	240,783	8.51	371	2,876,521	*90.01*
INF22_sim	1,450,000	1,525,447	105.20	-75,447	-5.20	371	1,473,836	*103.50*
INF22_teongrav	4,300,000	4,045,753	94.09	254,247	5.91	371	4,370,685	*92.57*
INF22_test	290,000	0	0.00	290,000	100.00	371	294,767	*0.00*
INF22_virgo	600,000	583,588	97.26	16,412	2.74	371	609,863	*95.69*
TOTALE	***59,300,000***	***45,383,130***	***76.53***	***13,916,870***	***23.47***	371	***60,274,795***	***75.29***

MARCONI 100 (Nvidia V100)

15 Mcorehours

MARCONI100								
da	*8-Feb-2022*	*a*	*14-Feb-2023*	*#giorni*	*371*			
account	budget (corehours)	consumo (corehours)	consumo/budget (%)	residuo (corehours)	residuo%	#giorni	consumo linearizzato (su 12 mesi)	consumo/ (consumo linearizzato) %
INF22_biophys_0	390,000	373,733	95.83	16,267	4.17	371	396,411	*94.28*
INF22_enesma_0	10,000	2,244	22.44	7,756	77.56	371	10,164	*22.08*
INF22_euclid_0	780,000	905,802	116.13	-125,802	-16.13	371	792,822	*114.25*
INF22_fldturb_0	500,000	989	0.20	499,011	99.80	371	508,219	*0.19*
INF22_gagra_0	5,000	0	0.00	5,000	100.00	371	5,082	*0.00*
INF22_indark_0	112,000	101,130	90.29	10,870	9.71	371	113,841	*88.83*
INF22_lhc_0	1,300,000	835,968	64.31	464,032	35.69	371	1,321,370	*63.27*
INF22_lqcd123_0	3,300,000	3,351,073	101.55	-51,073	-1.55	371	3,354,247	*99.91*
INF22_lspe_0	10,000	6,018	60.18	3,982	39.82	371	10,164	*59.21*
INF22_monstre_0	168,000	158,205	94.17	9,795	5.83	371	170,762	*92.65*
INF22_nemesys_0	60,000	49,382	82.30	10,618	17.70	371	60,986	*80.97*
INF22_neumatt_0	20,000	361	1.81	19,639	98.20	371	20,329	*1.78*
INF22_npqcd_0	2,415,000	2,093,126	86.67	321,874	13.33	371	2,454,699	*85.27*
INF22_nucsys_0	10,000	3,274	32.74	6,726	67.26	371	10,164	*32.21*
INF22_qcdlat_0	2,230,000	2,002,376	89.79	227,624	10.21	371	2,266,658	*88.34*
INF22_qftatcol_0	10,000	0	0.00	10,000	100.00	371	10,164	*0.00*
INF22_quantum_0	10,000	11,272	112.72	-1,272	-12.72	371	10,164	*110.90*
INF22_sft_0	170,000	156,621	92.13	13,379	7.87	371	172,795	*90.64*
INF22_sim_0	170,000	173,693	102.17	-3,693	-2.17	371	172,795	*100.52*
INF22_teongrav_0	1,230,000	1,127,895	91.70	102,105	8.30	371	1,250,219	*90.22*
INF22_test_0	80,000	0	0.00	80,000	100.00	371	81,315	*0.00*
INF22_virgo_0	1,860,000	1,732,327	93.14	127,673	6.86	371	1,890,575	*91.63*
TOTALE	***14,840,000***	***13,085,489***	***88.18***	***1,754,511***	***11.82***	371	***15,083,945***	***86.75***

2024

LEONARDO

LEONARDO supercomputer
250 PFlop/s - ITALY

GALILEO100

Type	Specific
Models	Dual-soket Dell PowerEdge
Nodes	630
Processors/node	2xCPU x86 Intel Xeon Platinum 8276/L 2.4GHz
CPU/node	48
Accelerators/node	2xGPU Nvidia V100 PCIe3 with 32 GB Ram on 36 Viz Nodes
RAM/node	384 GiB (+ 3.0 TiB Optane on 180 fat nodes)
Peak Performance	2 PFlop/s (3.53 TFlop/s in single node)
Internal Network	Mellanox Infiniband 100GbE

6 Mcorehours

- LEONARDO-booster 3456 nodes
  - 1 x CPU Intel Xeon 8358 32 cores, 2,6 GHz
  - 512 (8 x 64) GB RAM DDR4 3200 MHz
  - 4 X Nvidia custom Ampere GPU 64GB HBM2
  - 2 x NVidia HDR 2×100 Gb/s cards

96 Mcorehours

- LEONARDO-GP 1536 nodes
  - 2x Intel Sapphire Rapids, 56 cores, 4.8 GHz
  - 512 (16 x 32) GB RAM DDR5 4800 MHz
  - 3xNvidia HDR cards 1x100Gb/s cards
  - 8 TB NVM

160 Mcorehours

2024

CSN4

LEONARDO-booster

da	1-Feb-2024	a	31-Jan-2025	#giorni	365			
account	budget (corehours)	consumo (corehours)	consumo/budget (%)	residuo (corehours)	residuo%	#giorni	consumo atteso da linearizzazione mensile (corehours)	(consumo effettivo)/(consumo atteso da linearizzazione mensile del budget) [%]
INF24_biophys_1	2,500,000	1,781,228	71.25	718,772	28.75	365	2,500,000	*71.25*
INF24_fldturb_1	3,000,000	477,883	15.93	2,522,117	84.07	365	3,000,000	*15.93*
INF24_indark_1	5,000,000	2,665,322	53.31	2,334,678	46.69	365	5,000,000	*53.31*
INF24_lqcd123_1	26,400,000	27,181,676	102.96	-781,676	-2.96	365	26,400,000	*102.96*
INF24_neumatt_1	30,000	30,286	100.95	-286	-0.95	365	30,000	*100.95*
INF24_npqcd_1	18,000,000	15,857,801	88.10	2,142,199	11.90	365	18,000,000	*88.10*
INF24_qcdlat_1	15,600,000	15,098,299	96.78	501,701	3.22	365	15,600,000	*96.78*
INF24_teongrav_1	3,800,000	3,054,490	80.38	745,510	19.62	365	3,800,000	*80.38*
INF24_enesma_1	4,000,000	872,642	21.82	3,127,358	78.18	365	4,000,000	*21.82*
INF24_gagra_1	350,000	260,280	74.37	89,720	25.63	365	350,000	*74.37*
INF24_lhc_1	1,000,000	86,015	8.60	913,985	91.40	365	1,000,000	*8.60*
INF24_lincoln_1	200,000	42,520	21.26	157,480	78.74	365	200,000	*21.26*
INF24_monstre_1	80,000	81,632	102.04	-1,632	-2.04	365	80,000	*102.04*
INF24_nemesys_1	2,000,000	1,744,756	87.24	255,244	12.76	365	2,000,000	*87.24*
INF24_nucsys_1	1,000,000	949,787	94.98	50,213	5.02	365	1,000,000	*94.98*
INF24_pmlhep_1	2,375,000	368,450	15.51	2,006,550	84.49	365	2,375,000	*15.51*
INF24_qftatcol_1	500,000	0	0.00	500,000	100.00	365	500,000	*0.00*
INF24_quantum_1	1,100,000	641,155	58.29	458,845	41.71	365	1,100,000	*58.29*
INF24_sft_1	1,100,000	1,080,383	98.22	19,617	1.78	365	1,100,000	*98.22*
INF24_sim_1	3,400,000	2,921,113	85.92	478,887	14.08	365	3,400,000	85.92
INF24_test_1	4,190,000	3,425,610	81.76	764,390	18.24	365	4,190,000	81.76
TOTALE	***95,625,000***	***78,621,328***	***82.22***	***17,003,672***	***17.78***	***365***	***95,625,000***	***82.22***

CSN5

LEONARDO-booster

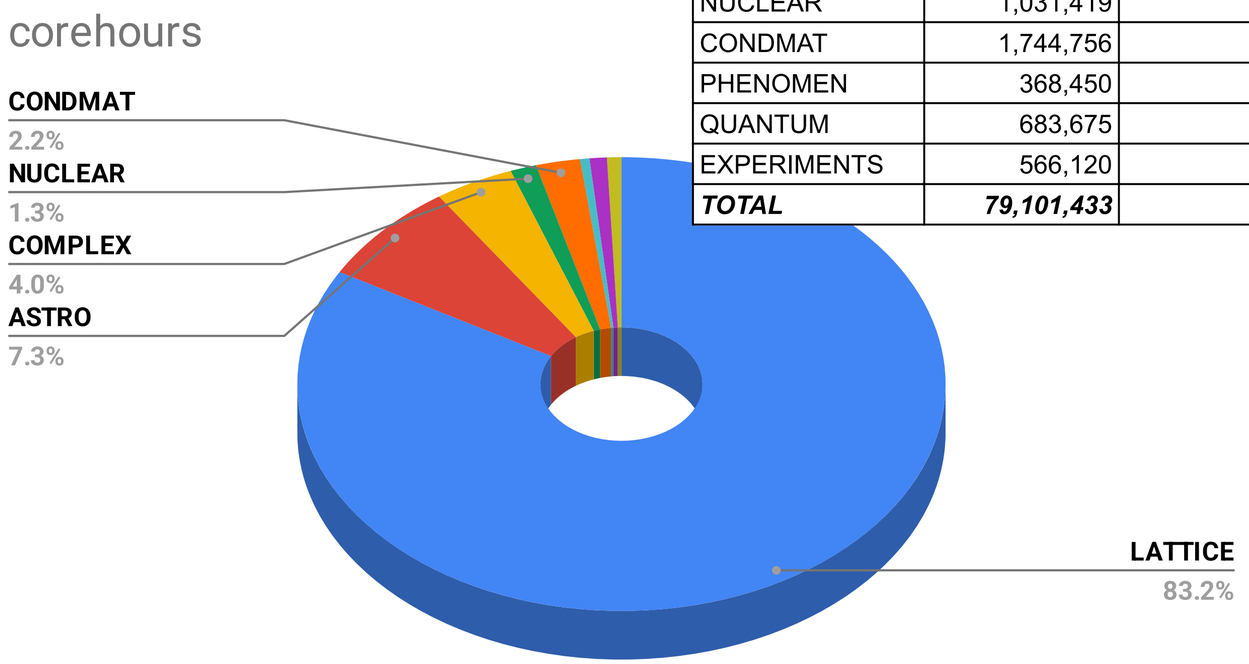
da	1-Feb-2024	a	31-Jan-2025	#giorni	365			
account	budget (corehours)	consumo (corehours)	consumo/budget (%)	residuo (corehours)	residuo%	#giorni	consumo atteso da linearizzazione mensile (corehours)	(consumo effettivo)/(consumo atteso da linearizzazione mensile del budget) [%]
INF24_anna_1	36,000	0	0.00	36,000	100.00	365	36,000	0.00
INF24_brainsta_1	192,000	354,709	184.74	-162,709	-84.74	365	192,000	184.74
INF24_miro_1	131,000	121,549	92.79	9,451	7.21	365	131,000	92.79
TOTALE	***359,000***	***476,258***	***132.66***	***-117,258***	***-32.66***	***365***	***359,000***	***132.66***

CSN2

LEONARDO-booster

da	1-Feb-2024	a	31-Jan-2025	#giorni	365			
account	budget (corehours)	consumo (corehours)	consumo/budget (%)	residuo (corehours)	residuo%	#giorni	consumo atteso da linearizzazione mensile (corehours)	(consumo effettivo)/(consumo atteso da linearizzazione mensile del budget) [%]
INF24_euclid_1	1,000	23	2.30	977	97.70	365	1,000	*2.30*
INF24_litebird_1	1,000	3,490	349.00	-2,490	-249.00	365	1,000	*349.00*
INF24_lspe_1	1,000	334	33.40	666	66.60	365	1,000	*33.40*
INF24_virgo_1	1,000	0	0.00	1,000	100.00	365	1,000	0.00
INF24_cubic_1	1,000	0	0.00	1,000	100.00	365	1,000	0.00
INF24_et_1	1,000	0	0.00	1,000	100.00	365	1,000	0.00
TOTALE	***6,000***	***3,847***	***64.12***	***2,153***	***35.88***	***365***	***6,000***	***64.12***

	corehours	%
LATTICE	65,825,162	83.22
ASTRO	5,750,098	7.27
COMPLEX	3,131,753	3.96
NUCLEAR	1,031,419	1.30
CONDMAT	1,744,756	2.21
PHENOMEN	368,450	0.47
QUANTUM	683,675	0.86
EXPERIMENTS	566,120	0.72
TOTAL	***79,101,433***	***100.00***



2024

CSN4

LEONARDO-GP								
da	1-Mar-2024	a	31-Jan-2025	#giorni	336			
account	budget (corehours)	consumo (corehours)	consumo/budget (%)	residuo (corehours)	residuo%	#giorni	consumo atteso da linearizzazione mensile (corehours)	(consumo effettivo)/(consumo atteso da linearizzazione mensile del budget) [%]
INF24_biophys_2	990,000	1,029,572	104.00	-39,572	-4.00	336	990,000	*104.00*
INF24_enesma_2	11,000	197	1.79	10,803	98.21	336	11,000	*1.79*
INF24_fldturb_2	7,633,840	6,726,185	88.11	907,655	11.89	336	7,633,840	*88.11*
INF24_gagra_2	443,920	444,447	100.12	-527	-0.12	336	443,920	*100.12*
INF24_indark_2	600,000	460,448	76.74	139,552	23.26	336	600,000	*76.74*
INF24_lhc_2	601,000	239,439	39.84	361,561	60.16	336	601,000	*39.84*
INF24_lincoln_2	668,000	664,677	99.50	3,323	0.50	336	668,000	*99.50*
INF24_lqcd123_2	13,460,000	13,539,468	100.59	-79,468	-0.59	336	13,460,000	*100.59*
INF24_monstre_2	1,106,430	349,604	31.60	756,826	68.40	336	1,106,430	*31.60*
INF24_nemesys_2	254,390	179,749	70.66	74,641	29.34	336	254,390	*70.66*
INF24_neumatt_2	1,710,740	1,701,034	99.43	9,706	0.57	336	1,710,740	*99.43*
INF24_npqcd_2	33,005,290	33,370,810	101.11	-365,520	-1.11	336	33,005,290	*101.11*
INF24_nucsys_2	1,110,000	1,140,723	102.77	-30,723	-2.77	336	1,110,000	*102.77*
INF24_pmlhep_2	452,000	250,838	55.50	201,162	44.50	336	452,000	*55.50*
INF24_qcdlat_2	62,909,310	63,159,298	100.40	-249,988	-0.40	336	62,909,310	*100.40*
INF24_qftatcol_2	3,303,500	2,998,929	90.78	304,571	9.22	336	3,303,500	*90.78*
INF24_quantum_2	2,326,540	2,131,288	91.61	195,252	8.39	336	2,326,540	*91.61*
INF24_sft_2	976,460	978,151	100.17	-1,691	-0.17	336	976,460	100.17
INF24_sim_2	1,360,000	1,419,374	104.37	-59,374	-4.37	336	1,360,000	104.37
INF24_teongrav_2	11,310,040	10,962,276	96.93	347,764	3.07	336	11,310,040	96.93
INF24_test_2	15,691,000	15,927,357	101.51	-236,357	-1.51	336	15,691,000	101.51
TOTALE	***159,923,460***	***157,673,864***	***98.59***	***2,249,596***	***1.41***	***336***	***159,923,460***	***98.59***

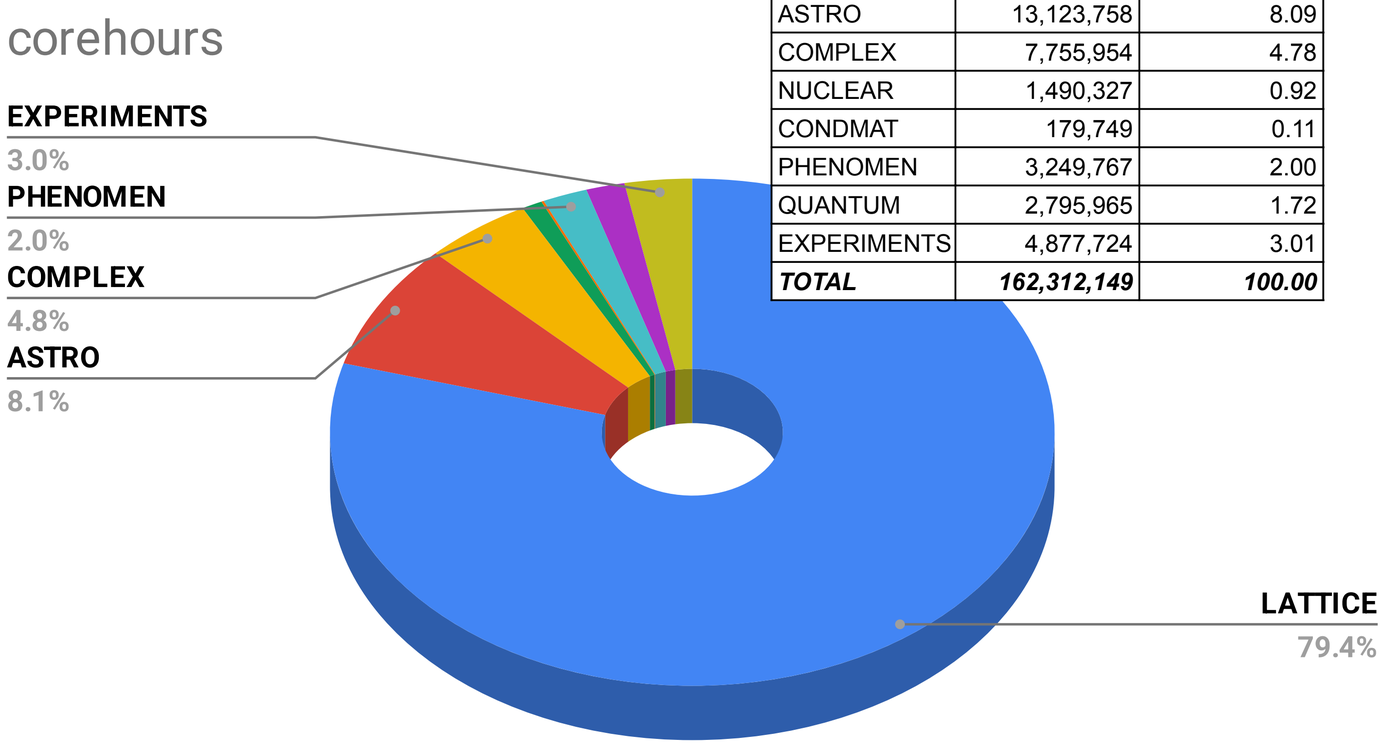
CSN2

LEONARDO-GP								
da	1-Mar-2024	a	31-Jan-2025	#giorni	336			
account	budget (corehours)	consumo (corehours)	consumo/budget (%)	residuo (corehours)	residuo%	#giorni	consumo atteso da linearizzazione mensile (corehours)	(consumo effettivo)/(consumo atteso da linearizzazione mensile del budget) [%]
INF24_cubic_2	127,000	0	0.00	127,000	100.00	336	127,000	*0.00*
INF24_et_2	440,000	0	0.00	440,000	100.00	336	440,000	*0.00*
INF24_euclid_2	4,231,270	3,630,746	85.81	600,524	14.19	336	4,231,270	*85.81*
INF24_litebird_2	1,620,710	365,721	22.57	1,254,989	77.43	336	1,620,710	*22.57*
INF24_lspe_2	297,160	4,838	1.63	292,322	98.37	336	297,160	*1.63*
INF24_virgo_2	2,000	0	0.00	2,000	100.00	336	2,000	0.00
TOTALE	***6,718,140***	***4,001,305***	***59.56***	***2,716,835***	***40.44***	***336***	***6,718,140***	***59.56***

CSN5

LEONARDO-GP								
da	1-Mar-2024	a	31-Jan-2025	#giorni	336			
account	budget (corehours)	consumo (corehours)	consumo/budget (%)	residuo (corehours)	residuo%	#giorni	consumo atteso da linearizzazione mensile (corehours)	(consumo effettivo)/(consumo atteso da linearizzazione mensile del budget) [%]
INF24_anna_2	300,000	0	0.00	300,000	100.00	336	300,000	0.00
INF24_brainsta_2	2,000	0	0.00	2,000	100.00	336	2,000	0.00
INF24_miro_2	601,000	636,980	105.99	-35,980	-5.99	336	601,000	105.99
TOTALE	***903,000***	***636,980***	***70.54***	***266,020***	***29.46***	***336***	***903,000***	***70.54***

	corehours	%
LATTICE	128,838,905	79.38
ASTRO	13,123,758	8.09
COMPLEX	7,755,954	4.78
NUCLEAR	1,490,327	0.92
CONDMAT	179,749	0.11
PHENOMEN	3,249,767	2.00
QUANTUM	2,795,965	1.72
EXPERIMENTS	4,877,724	3.01
TOTAL	***162,312,149***	***100.00***



2024

CSN4

MARCONI-A3

da	1-Feb-2024	a	27-Jul-2024	#giorni	177			
account	budget (corehours)	consumo (corehours)	consumo/budget (%)	residuo (corehours)	residuo%	#giorni	consumo atteso da linearizzazione mensile (corehours)	(consumo effettivo)/(consumo atteso da linearizzazione mensile del budget) [%]
INF24_biophys	300,000	315,201	105.07	-15,201	-5.07	177	145,479	*216.66*
INF24_fldturb	700,000	205,262	29.32	494,738	70.68	177	339,452	*60.47*
INF24_indark	100,000	102,011	102.01	-2,011	-2.01	177	48,493	*210.36*
INF24_lqcd123	1,500,000	0	0.00	1,500,000	100.00	177	727,397	*0.00*
INF24_neumatt	400,000	389,264	97.32	10,736	2.68	177	193,973	*200.68*
INF24_npqcd	3,300,000	1,311,031	39.73	1,988,969	60.27	177	1,600,274	*81.93*
INF24_qcdlat	5,000,000	2,680,235	53.60	2,319,765	46.40	177	2,424,658	*110.54*
INF24_teongrav	800,000	779,960	97.50	20,040	2.51	177	387,945	*201.05*
INF24_enesma	1,000	0	0.00	1,000	100.00	177	485	*0.00*
INF24_gagra	25,000	21,078	84.31	3,922	15.69	177	12,123	*173.86*
INF24_lhc	1,000	0	0.00	1,000	100.00	177	485	*0.00*
INF24_lincoln	30,000	0	0.00	30,000	100.00	177	14,548	*0.00*
INF24_monstre	160,000	13,549	8.47	146,451	91.53	177	77,589	*17.46*
INF24_nemesys	40,000	25,609	64.02	14,391	35.98	177	19,397	*132.02*
INF24_nucsys	150,000	0	0.00	150,000	100.00	177	72,740	*0.00*
INF24_pmlhep	1,000	0	0.00	1,000	100.00	177	485	*0.00*
INF24_qftatcol	150,000	6,494	4.33	143,506	95.67	177	72,740	*8.93*
INF24_quantum	40,000	3,458	8.65	36,542	91.36	177	19,397	*17.83*
INF24_sft	120,000	63,537	52.95	56,463	47.05	177	58,192	*109.19*
INF24_sim	150,000	0	0.00	150,000	100.00	177	72,740	*0.00*
INF24_test	1,042,000	0	0.00	1,042,000	100.00	177	505,299	*0.00*
TOTALE	***14,010,000***	***5,916,689***	***42.23***	***8,093,311***	***57.77***	***177***	***6,793,890***	***87.09***

CSN2

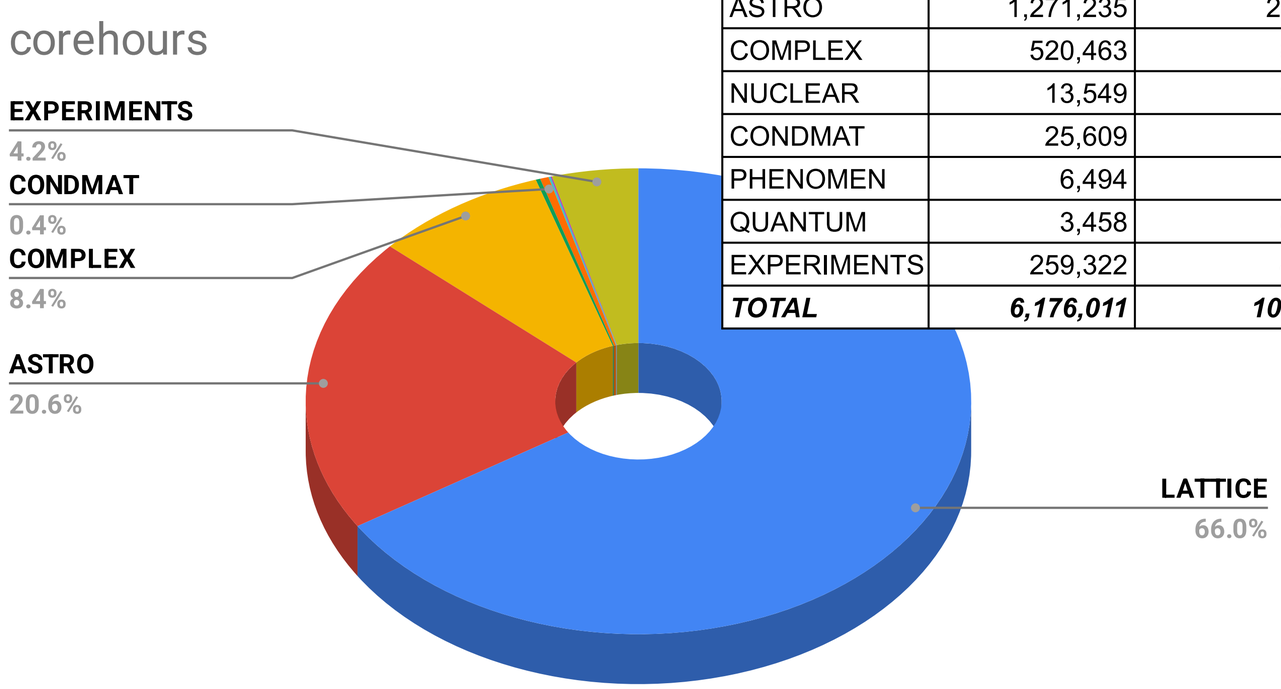
MARCONI-A3

da	1-Feb-2024	a	27-Jul-2024	#giorni	177			
account	budget (corehours)	consumo (corehours)	consumo/budget (%)	residuo (corehours)	residuo%	#giorni	consumo atteso da linearizzazione mensile (corehours)	(consumo effettivo)/(consumo atteso da linearizzazione mensile del budget) [%]
INF24_euclid	500,000	28,656	5.73	471,344	94.27	177	242,466	*11.82*
INF24_litebird	249,000	216,831	87.08	32,169	12.92	177	120,748	*179.57*
INF24_lspe	41,000	13,835	33.74	27,165	66.26	177	19,882	*69.58*
INF24_virgo	1,000	0	0.00	1,000	100.00	177	485	*0.00*
INF24_cubic	17,000	0	0.00	17,000	100.00	177	8,244	*0.00*
INF24_et	60,000	0	0.00	60,000	100.00	177	29,096	*0.00*
TOTALE	***868,000***	***259,322***	***29.88***	***608,678***	***70.12***	***177***	***420,921***	***61.61***

CSN5

MARCONI-A3

da	1-Feb-2024	a	27-Jul-2024	#giorni	177			
account	budget (corehours)	consumo (corehours)	consumo/budget (%)	residuo (corehours)	residuo%	#giorni	consumo atteso da linearizzazione mensile (corehours)	(consumo effettivo)/(consumo atteso da linearizzazione mensile del budget) [%]
INF24_anna	40,000	0	0.00	40,000	100.00	177	19,397	*0.00*
INF24_brainsta	1,000	0	0.00	1,000	100.00	177	485	*0.00*
INF24_miro	81,000	0	0.00	81,000	100.00	177	39,279	*0.00*
TOTALE	***122,000***	***0***	***0.00***	***122,000***	***100.00***	***177***	***59,162***	***0.00***



	corehours	%
LATTICE	4,075,881	66.00
ASTRO	1,271,235	20.58
COMPLEX	520,463	8.43
NUCLEAR	13,549	0.22
CONDMAT	25,609	0.41
PHENOMEN	6,494	0.11
QUANTUM	3,458	0.06
EXPERIMENTS	259,322	4.20
TOTAL	***6,176,011***	***100.00***

2024

CSN4

GALILEO100								
da	*1-Feb-2024*	*a*	*31-Jan-2025*	*#giorni*	*365*			
account	budget (corehours)	consumo (corehours)	consumo/budget (%)	residuo (corehours)	residuo%	#giorni	consumo atteso da linearizzazione mensile (corehours)	(consumo effettivo)/(consumo atteso da linearizzazione mensile del budget) [%]
INF24_biophys_0	19,998	25,208	126.05	-5,210	-26.05	365	19,998	*126.05*
INF24_fldturb_0	300,003	311,988	103.99	-11,985	-3.99	365	300,003	*103.99*
INF24_indark_0	39,999	41,378	103.45	-1,379	-3.45	365	39,999	*103.45*
INF24_lqcd123_0	499,998	11	0.00	499,987	100.00	365	499,998	*0.00*
INF24_neumatt_0	79,998	102,135	127.67	-22,137	-27.67	365	79,998	*127.67*
INF24_npqcd_0	1,350,000	401,889	29.77	948,111	70.23	365	1,350,000	*29.77*
INF24_qcdlat_0	2,149,998	159,634	7.42	1,990,364	92.58	365	2,149,998	*7.42*
INF24_teongrav_0	300,000	305,630	101.88	-5,630	-1.88	365	300,000	*101.88*
INF24_enesma_0	999	0	0.00	999	100.00	365	999	*0.00*
INF24_gagra_0	9,999	0	0.00	9,999	100.00	365	9,999	*0.00*
INF24_lhc_0	999	1	0.10	998	99.90	365	999	*0.10*
INF24_lincoln_0	10,998	8,305	75.51	2,693	24.49	365	10,998	*75.51*
INF24_monstre_0	60,000	42,276	70.46	17,724	29.54	365	60,000	*70.46*
INF24_nemesys_0	15,000	15,963	106.42	-963	-6.42	365	15,000	*106.42*
INF24_nucsys_0	60,000	61,137	101.90	-1,137	-1.90	365	60,000	*101.90*
INF24_pmlhep_0	100,998	108,563	107.49	-7,565	-7.49	365	100,998	*107.49*
INF24_qftatcol_0	60,000	2,650	4.42	57,350	95.58	365	60,000	*4.42*
INF24_quantum_0	15,000	0	0.00	15,000	100.00	365	15,000	*0.00*
INF24_sft_0	49,998	41,110	82.22	8,888	17.78	365	49,998	*82.22*
INF24_sim_0	60,000	3	0.01	59,997	100.00	365	60,000	*0.01*
INF24_test_0	387,999	0	0.00	387,999	100.00	365	387,999	*0.00*
TOTALE	***5,571,984***	***1,627,881***	***29.22***	***3,944,103***	***70.78***	***365***	***5,571,984***	***29.22***

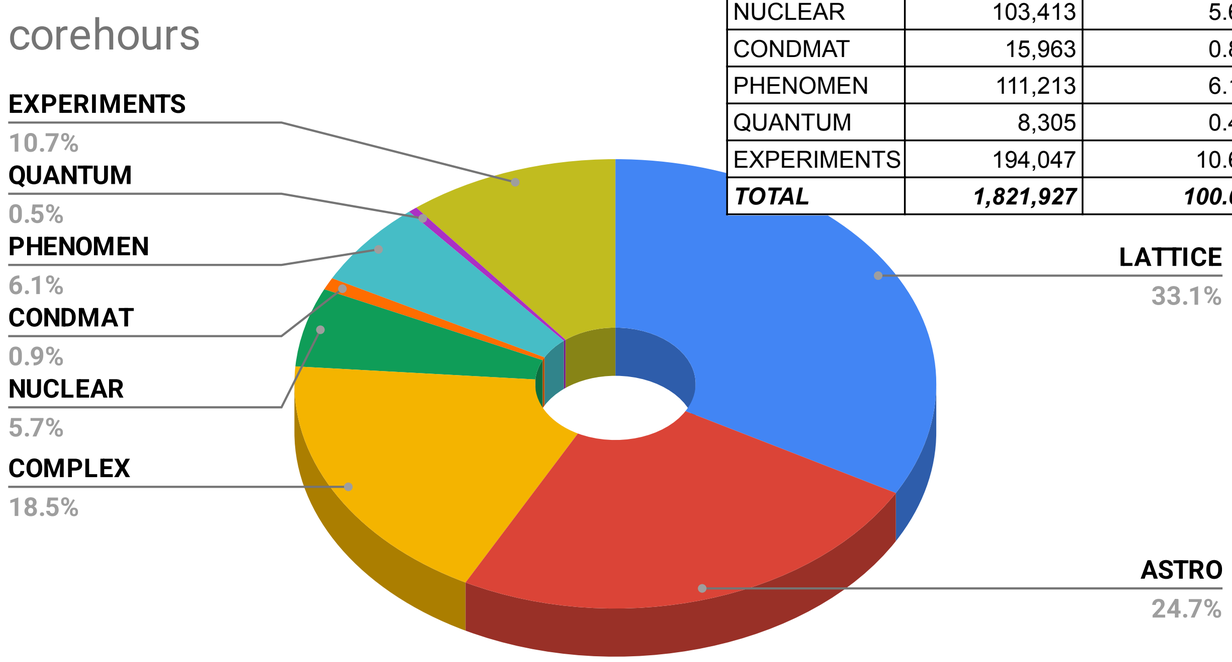
CSN2

GALILEO100								
da	*1-Feb-2024*	*a*	*31-Jan-2025*	*#giorni*	*365*			
account	budget (corehours)	consumo (corehours)	consumo/budget (%)	residuo (corehours)	residuo%	#giorni	consumo atteso da linearizzazione mensile (corehours)	(consumo effettivo)/(consumo atteso da linearizzazione mensile del budget) [%]
INF24_euclid_0	229,998	142,696	62.04	87,302	37.96	365	229,998	*62.04*
INF24_litebird_0	99,000	34,948	35.30	64,052	64.70	365	99,000	*35.30*
INF24_lspe_0	16,998	13,983	82.26	3,015	17.74	365	16,998	*82.26*
INF24_virgo_0	999	0	0.00	999	100.00	365	999	*0.00*
INF24_cubic_0	6,999	0	0.00	6,999	100.00	365	6,999	*0.00*
INF24_et_0	24,000	2,419	10.08	21,581	89.92	365	24,000	*10.08*
TOTALE	***377,994***	***194,046***	***51.34***	***183,948***	***48.66***	***365***	***377,994***	***51.34***

CSN5

GALILEO100								
da	*1-Feb-2024*	*a*	*31-Jan-2025*	*#giorni*	*365*			
account	budget (corehours)	consumo (corehours)	consumo/budget (%)	residuo (corehours)	residuo%	#giorni	consumo atteso da linearizzazione mensile (corehours)	(consumo effettivo)/(consumo atteso da linearizzazione mensile del budget) [%]
INF24_anna_0	15,999	0	0.00	15,999	100.00	365	15,999	*0.00*
INF24_brainsta_0	999	0	0.00	999	100.00	365	999	*0.00*
INF24_miro_0	33,000	0	0.00	33,000	100.00	365	33,000	*0.00*
TOTALE	***49,998***	***0***	***0.00***	***49,998***	***100.00***	***365***	***49,998***	***0.00***

	corehours	%
LATTICE	602,647	33.08
ASTRO	449,143	24.65
COMPLEX	337,196	18.51
NUCLEAR	103,413	5.68
CONDMAT	15,963	0.88
PHENOMEN	111,213	6.10
QUANTUM	8,305	0.46
EXPERIMENTS	194,047	10.65
TOTAL	***1,821,927***	***100.00***



2025

LEONARDO

LEONARDO supercomputer
250 PFlop/s - ITALY

GALILEO100

Type	Specific
Models	Dual-soket Dell PowerEdge
Nodes	630
Processors/node	2xCPU x86 Intel Xeon Platinum 8276/L 2.4GHz
CPU/node	48
Accelerators/node	2xGPU Nvidia V100 PCIe3 with 32 GB Ram on 36 Viz Nodes
RAM/node	384 GiB (+ 3.0 TiB Optane on 180 fat nodes)
Peak Performance	2 PFlop/s (3.53 TFlop/s in single node)
Internal Network	Mellanox Infiniband 100GbE

6 Mcorehours

- **LEONARDO-booster** 3456 nodes
  - 1 x CPU Intel Xeon 8358 32 cores, 2,6 GHz
  - 512 (8 x 64) GB RAM DDR4 3200 MHz
  - 4 X Nvidia custom Ampere GPU 64GB HBM2
  - 2 x NVidia HDR 2×100 Gb/s cards

96 Mcorehours

(~10% of LEONARDO-booster)

- **LEONARDO-GP** 1536 nodes
  - 2x Intel Sapphire Rapids, 56 cores, 4.8 GHz
  - 512 (16 x 32) GB RAM DDR5 4800 MHz
  - 3xNvidia HDR cards 1x100Gb/s cards
  - 8 TB NVM

100 Mcorehours

(~13% of LEONARDO-DCGP)

2025

CSN4

LEONARDO-booster

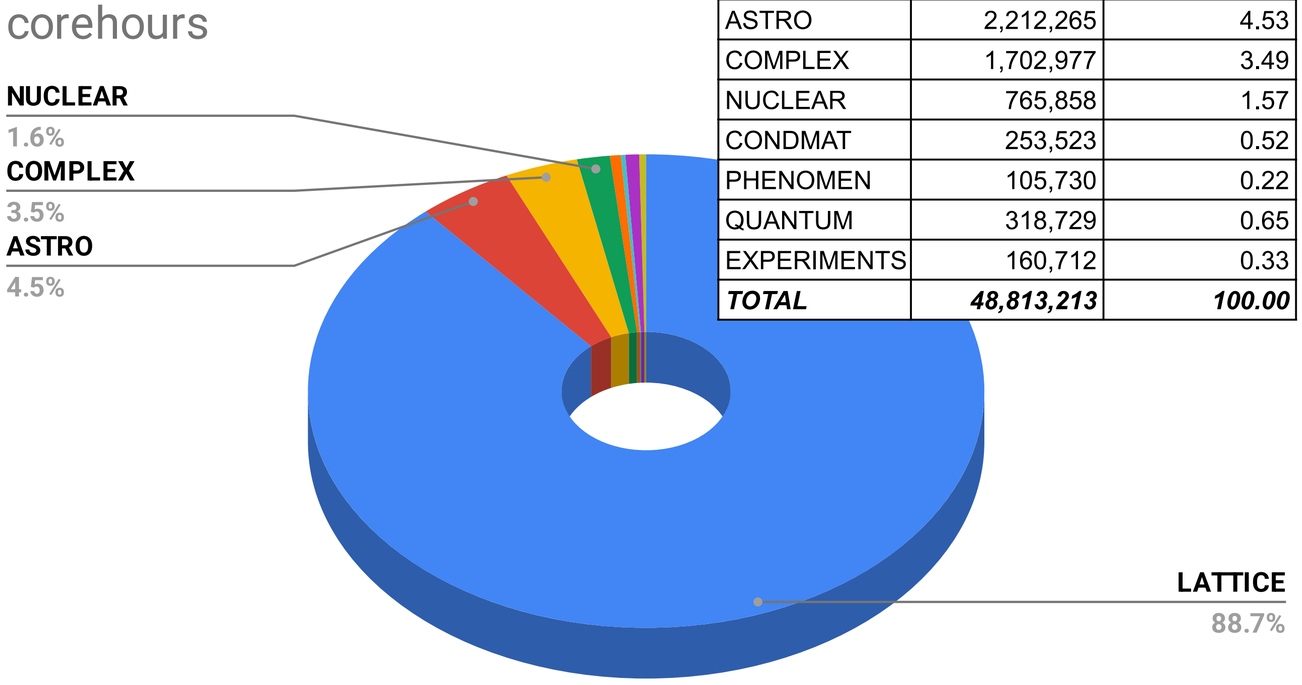
da	01-Feb-2025	a	02-Sep-2025	#giorni	213			
account	budget (corehours)	consumo (corehours)	consumo/budget (%)	residuo (corehours)	residuo%	#giorni	consumo atteso da linearizzazione mensile (corehours)	(consumo effettivo)/(consumo atteso da linearizzazione mensile del budget) [%]
INF25_biophys	2,000,000	900,366	45.02	1,099,634	54.98	213	1,167,123	*77.14*
INF25_enesma	1,000,000	380,731	38.07	619,269	61.93	213	583,562	*65.24*
INF25_fldturb	1,000,000	421,880	42.19	578,120	57.81	213	583,562	*72.29*
INF25_gagra	300,000	114	0.04	299,886	99.96	213	175,068	*0.07*
INF25_indark	2,000,000	969,114	48.46	1,030,886	51.54	213	1,167,123	*83.03*
INF25_lhc	100,000	65,756	65.76	34,244	34.24	213	58,356	*112.68*
INF25_lincoln	9,600	0	0.00	9,600	100.00	213	5,602	*0.00*
INF25_lqcd123	26,500,000	11,501,041	43.40	14,998,959	56.60	213	15,464,384	*74.37*
INF25_monstre	220,000	104,541	47.52	115,459	52.48	213	128,384	*81.43*
INF25_nemesys	200,000	253,523	126.76	-53,523	-26.76	213	116,712	*217.22*
INF25_neumatt	100,000	91,825	91.83	8,175	8.18	213	58,356	*157.35*
INF25_npqcd	26,500,000	19,905,989	75.12	6,594,011	24.88	213	15,464,384	*128.72*
INF25_nucsys	2,000,000	661,317	33.07	1,338,683	66.93	213	1,167,123	*56.66*
INF25_pml4hep	250,000	105,730	42.29	144,270	57.71	213	145,890	*72.47*
INF25_qcdlat	18,000,000	11,647,072	64.71	6,352,928	35.29	213	10,504,110	*110.88*
INF25_qftatcol	500,000	0	0.00	500,000	100.00	213	291,781	*0.00*
INF25_quantum	500,000	318,729	63.75	181,271	36.25	213	291,781	109.24
INF25_sft	750,000	239,109	31.88	510,891	68.12	213	437,671	54.63
INF25_sim	500,000	0	0.00	500,000	100.00	213	291,781	0.00
INF25_teongrav	4,000,000	1,151,326	28.78	2,848,674	71.22	213	2,334,247	49.32
INF25_test	9,182,800	94	0.00	9,182,706	100.00	213	5,358,730	0.00
TOTALE	***95,612,400***	***48,718,257***	***50.95***	***46,894,143***	***49.05***	***213***	***55,795,729***	***87.32***

CSN5

LEONARDO-booster

da	01-Feb-2025	a	02-Sep-2025	#giorni	213			
account	budget (corehours)	consumo (corehours)	consumo/budget (%)	residuo (corehours)	residuo%	#giorni	consumo atteso da linearizzazione mensile (corehours)	(consumo effettivo)/(consumo atteso da linearizzazione mensile del budget) [%]
INF25_brainsta	80,000	73,559	91.95	6,441	8.05	213	46,685	*157.56*
INF25_miro	17,600	1,539	8.74	16,061	91.26	213	10,271	*14.98*
INF25_vita5	24,000	0	0.00	24,000	100.00	213	14,005	0.00
INF25_fusion	160,000	0	0.00	160,000	100.00	213	93,370	0.00
INF25_plasma4b	1,000	16,653	1,665.30	-15,653	-1565.30	213	584	2,853.68
TOTALE	***282,600***	***91,751***	***32.47***	***190,849***	***67.53***	***213***	***164,915***	***55.64***

	corehours	%
LATTICE	43,293,419	88.69
ASTRO	2,212,265	4.53
COMPLEX	1,702,977	3.49
NUCLEAR	765,858	1.57
CONDMAT	253,523	0.52
PHENOMEN	105,730	0.22
QUANTUM	318,729	0.65
EXPERIMENTS	160,712	0.33
TOTAL	***48,813,213***	***100.00***



CSN2

LEONARDO-booster

da	01-Feb-2025	a	02-Sep-2025	#giorni	213			
account	budget (corehours)	consumo (corehours)	consumo/budget (%)	residuo (corehours)	residuo%	#giorni	consumo atteso da linearizzazione mensile (corehours)	(consumo effettivo)/(consumo atteso da linearizzazione mensile del budget) [%]
INF25_et	1,000	3,198	319.80	-2,198	-219.80	213	584	*548.01*
INF25_euclid	1,000	0	0.00	1,000	100.00	213	584	*0.00*
INF25_litebird	1,000	7	0.70	993	99.30	213	584	*1.20*
INF25_lspe	1,000	0	0.00	1,000	100.00	213	584	*0.00*
INF25_qubic	1,000	0	0.00	1,000	100.00	213	584	0.00
TOTALE	***5,000***	***3,205***	***64.10***	***1,795***	***35.90***	***213***	***2,918***	***109.84***

- **Disk Space on area $WORK: 621,568 GB**

2025

CSN4

LEONARDO-DCGP

da	01-Feb-2025	a	02-Sep-2025	#giorni	213			
account	budget (corehours)	consumo (corehours)	consumo/budget (%)	residuo (corehours)	residuo%	#giorni	consumo atteso da linearizzazione mensile (corehours)	(consumo effettivo)/(consumo atteso da linearizzazione mensile del budget) [%]
INF25_biophys_0	900,000	32,211	3.58	867,789	96.42	213	525,205	*6.13*
INF25_enesma_0	1,000	14,951	1,495.10	-13,951	-1395.10	213	584	*2,562.03*
INF25_fldturb_0	5,500,000	1,678,158	30.51	3,821,842	69.49	213	3,209,589	*52.29*
INF25_gagra_0	299,000	129,257	43.23	169,743	56.77	213	174,485	*74.08*
INF25_indark_0	200,000	224,258	112.13	-24,258	-12.13	213	116,712	*192.15*
INF25_lhc_0	51,000	2,920	5.73	48,080	94.27	213	29,762	*9.81*
INF25_lincoln_0	300,000	103,092	34.36	196,908	65.64	213	175,068	*58.89*
INF25_lqcd123_0	3,000,000	7,642	0.25	2,992,358	99.75	213	1,750,685	*0.44*
INF25_monstre_0	510,000	310,101	60.80	199,899	39.20	213	297,616	*104.19*
INF25_nemesys_0	200,000	62,798	31.40	137,202	68.60	213	116,712	*53.81*
INF25_neumatt_0	1,750,000	790,626	45.18	959,374	54.82	213	1,021,233	*77.42*
INF25_npqcd_0	22,000,000	14,797,007	67.26	7,202,993	32.74	213	12,838,356	*115.26*
INF25_nucsys_0	800,000	8,682	1.09	791,318	98.91	213	466,849	*1.86*
INF25_pml4hep_0	200,000	0	0.00	200,000	100.00	213	116,712	*0.00*
INF25_qcdlat_0	47,000,000	29,497,374	62.76	17,502,626	37.24	213	27,427,397	*107.55*
INF25_qftatcol_0	3,000,000	1,481,684	49.39	1,518,316	50.61	213	1,750,685	*84.63*
INF25_quantum_0	800,000	30,734	3.84	769,266	96.16	213	466,849	6.58
INF25_sft_0	400,000	222,828	55.71	177,172	44.29	213	233,425	95.46
INF25_sim_0	340,000	0	0.00	340,000	100.00	213	198,411	0.00
INF25_teongrav_0	8,500,000	8,583,634	100.98	-83,634	-0.98	213	4,960,274	173.05
INF25_test_0	4,240,000	6,776	0.16	4,233,224	99.84	213	2,474,301	0.27
TOTALE	***99,991,000***	***57,984,733***	***57.99***	***42,006,267***	***42.01***	***213***	***58,350,912***	***99.37***

CSN5

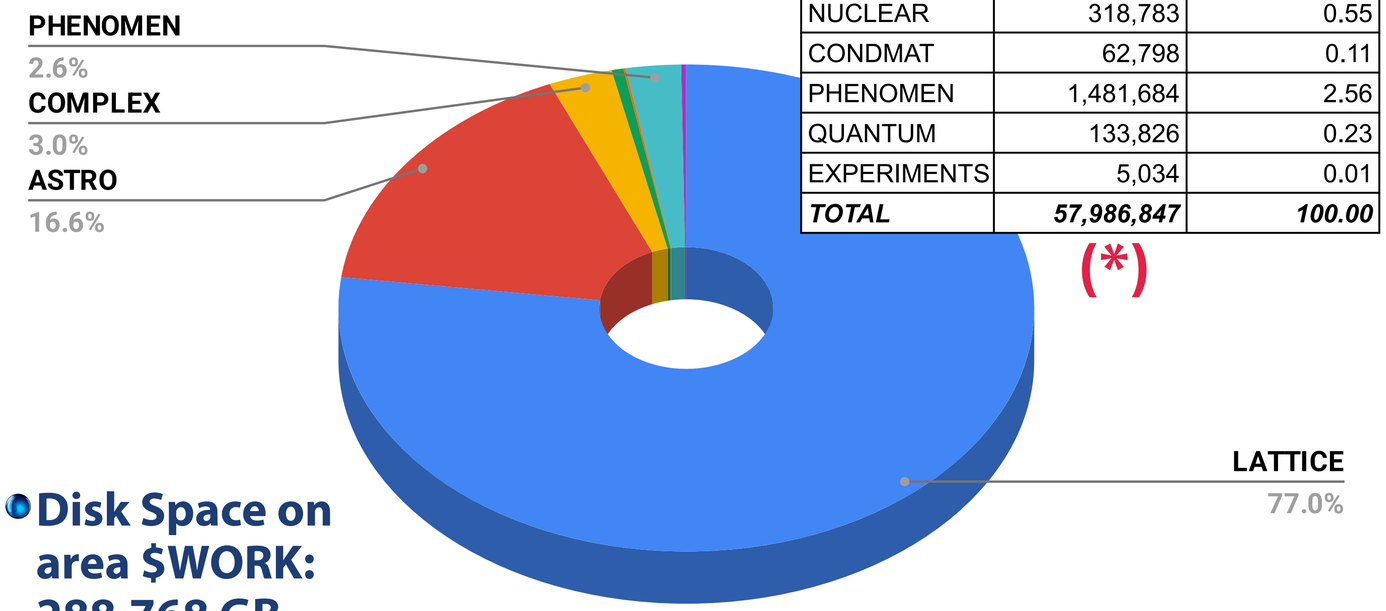
LEONARDO-DCGP

da	01-Feb-2025	a	02-Sep-2025	#giorni	213			
account	budget (corehours)	consumo (corehours)	consumo/budget (%)	residuo (corehours)	residuo%	#giorni	consumo atteso da linearizzazione mensile (corehours)	(consumo effettivo)/(consumo atteso da linearizzazione mensile del budget) [%]
INF25_brainsta_0	1,000	0	0.00	1,000	100.00	213	584	*0.00*
INF25_miro_0	1,000	0	0.00	1,000	100.00	213	584	*0.00*
INF25_vita5_0	1,000	0	0.00	1,000	100.00	213	584	0.00
INF25_fusion_0	1,000	0	0.00	1,000	100.00	213	584	0.00
INF25_plasma4b_0	1,000	0	0.00	1,000	100.00	213	584	0.00
TOTALE	***4,000***	***0***	***0.00***	***4,000***	***100.00***	***213***	***2,334***	***0.00***

CSN2

LEONARDO-DCGP

da	01-Feb-2025	a	02-Sep-2025	#giorni	213			
account	budget (corehours)	consumo (corehours)	consumo/budget (%)	residuo (corehours)	residuo%	#giorni	consumo atteso da linearizzazione mensile (corehours)	(consumo effettivo)/(consumo atteso da linearizzazione mensile del budget) [%]
INF25_et_0	1,000	0	0.00	1,000	100.00	213	584	*0.00*
INF25_euclid_0	1,000	723	72.30	277	27.70	213	584	*123.89*
INF25_litebird_0	1,000	1,198	119.80	-198	-19.80	213	584	*205.29*
INF25_lspe_0	1,000	193	19.30	807	80.70	213	584	*33.07*
INF25_qubic_0	1,000	0	0.00	1,000	100.00	213	584	0.00
TOTALE	***5,000***	***2,114***	***42.28***	***2,886***	***57.72***	***213***	***2,918***	***72.45***



	corehours	%
LATTICE	44,660,884	77.02
ASTRO	9,598,518	16.55
COMPLEX	1,725,320	2.98
NUCLEAR	318,783	0.55
CONDMAT	62,798	0.11
PHENOMEN	1,481,684	2.56
QUANTUM	133,826	0.23
EXPERIMENTS	5,034	0.01
TOTAL	***57,986,847***	***100.00***

(*)

- **Disk Space on area $WORK: 288,768 GB**

(*) **58 Mcorehours + 36 Mcorehours di consumo opportunistico (INF25_theo) —> 94 Mcorehours al 01/09/2025**

2025

CSN4

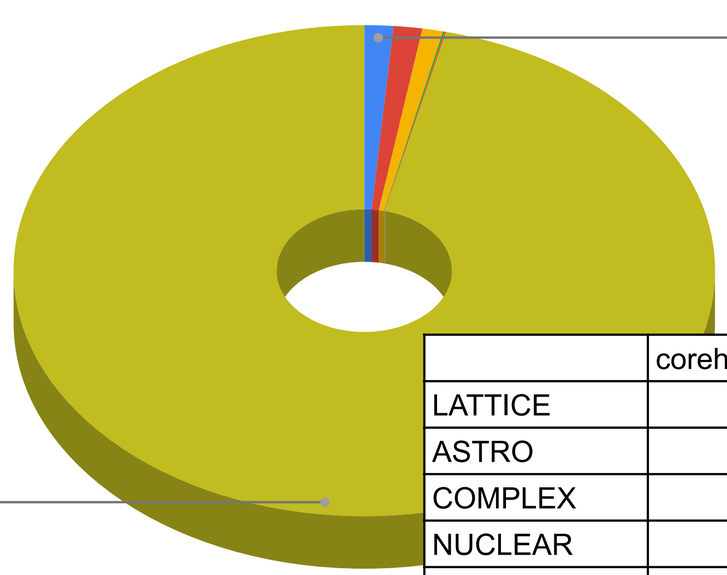
GALILEO100								
da	*01-Feb-2025*	*a*	*29-Aug-2025*	*#giorni*	*209*			
account	budget (corehours)	consumo (corehours)	consumo/budget (%)	residuo (corehours)	residuo%	#giorni	consumo atteso da linearizzazione mensile (corehours)	(consumo effettivo)/(consumo atteso da linearizzazione mensile del budget) [%]
INF25_biophys_1	999	2,199	220.12	-1,200	-120.12	209	572	*384.42*
INF25_enesma_1	999	0	0.00	999	100.00	209	572	*0.00*
INF25_fldturb_1	999	12,891	1,290.39	-11,892	-1190.39	209	572	*2,253.55*
INF25_gagra_1	999	422	42.24	577	57.76	209	572	*73.77*
INF25_indark_1	999	145	14.51	854	85.49	209	572	*25.35*
INF25_lhc_1	999	0	0.00	999	100.00	209	572	*0.00*
INF25_lincoln_1	999	0	0.00	999	100.00	209	572	*0.00*
INF25_lqcd123_1	999	0	0.00	999	100.00	209	572	*0.00*
INF25_monstre_1	999	1,115	111.61	-116	-11.61	209	572	*194.92*
INF25_nemesys_1	999	1,267	126.83	-268	-26.83	209	572	*221.49*
INF25_neumatt_1	999	0	0.00	999	100.00	209	572	*0.00*
INF25_npqcd_1	999	19,586	1,960.56	-18,587	-1860.56	209	572	*3,423.95*
INF25_nucsys_1	999	0	0.00	999	100.00	209	572	*0.00*
INF25_pml4hep_1	999	46	4.60	953	95.40	209	572	*8.04*
INF25_qcdlat_1	999	0	0.00	999	100.00	209	572	*0.00*
INF25_qftatcol_1	999	0	0.00	999	100.00	209	572	*0.00*
INF25_quantum_1	999	0	0.00	999	100.00	209	572	0.00
INF25_sft_1	999	955	95.60	44	4.40	209	572	166.95
INF25_sim_1	999	0	0.00	999	100.00	209	572	0.00
INF25_teongrav_1	999	20,582	2,060.26	-19,583	-1960.26	209	572	3,598.06
INF25_test_1	999	0	0.00	999	100.00	209	572	0.00
TOTALE	***20,979***	***59,208***	***282.23***	***-38,229***	***-182.23***	***209***	***12,013***	***492.88***

CSN5

GALILEO100								
da	*01-Feb-2025*	*a*	*29-Aug-2025*	*#giorni*	*209*			
account	budget (corehours)	consumo (corehours)	consumo/budget (%)	residuo (corehours)	residuo%	#giorni	consumo atteso da linearizzazione mensile (corehours)	(consumo effettivo)/(consumo atteso da linearizzazione mensile del budget) [%]
INF25_brainsta_1	399,999	0	0.00	399,999	100.00	209	229,041	*0.00*
INF25_miro_1	999,999	804,151	80.42	195,848	19.58	209	572,602	*140.44*
INF25_vita5_1	1,399,998	104,817	7.49	1,295,181	92.51	209	801,643	13.08
INF25_fusion_1	240,000	68,591	28.58	171,409	71.42	209	137,425	49.91
INF25_plasma4b_1	499,998	0	0.00	499,998	100.00	209	286,300	0.00
TOTALE	***3,539,994***	***977,559***	***27.61***	***2,562,435***	***72.39***	***209***	***2,027,010***	***48.23***

CSN2

GALILEO100								
da	*01-Feb-2025*	*a*	*29-Aug-2025*	*#giorni*	*209*			
account	budget (corehours)	consumo (corehours)	consumo/budget (%)	residuo (corehours)	residuo%	#giorni	consumo atteso da linearizzazione mensile (corehours)	(consumo effettivo)/(consumo atteso da linearizzazione mensile del budget) [%]
INF25_et_1	99,999	136,391	136.39	-36,392	-36.39	209	57,260	*238.20*
INF25_euclid_1	939,000	86,464	9.21	852,536	90.79	209	537,674	*16.08*
INF25_litebird_1	699,999	213,935	30.56	486,064	69.44	209	400,821	*53.37*
INF25_lspe_1	499,998	97,465	19.49	402,533	80.51	209	286,300	*34.04*
INF25_qubic_1	199,998	0	0.00	199,998	100.00	209	114,519	0.00
TOTALE	***2,438,994***	***534,255***	***21.90***	***1,904,739***	***78.10***	***209***	***1,396,575***	***38.25***



	corehours	%
LATTICE	20,963	1.33
ASTRO	20,727	1.32
COMPLEX	15,090	0.96
NUCLEAR	1,115	0.07
CONDMAT	1,267	0.08
PHENOMEN	46	0.00
QUANTUM	0	0.00
EXPERIMENTS	1,511,814	96.23
TOTAL	***1,571,022***	***100.00***

- **Disk Space on area $WORK: 51,200 GB**

2026

LEONARDO-booster → **96 Mcorehours**

LISA???

LEONARDO-DCGP → **100 Mcorehours**

200 Mcorehours (LHC)

GALILEO100 (*) → **6 Mcorehours**

(*) **Dovrebbe restare in servizio fino a tutto il 2026**

<u>PROBLEMA</u>: rinnovo dell'Accordo Quadro e Attuativo Cineca-INFN