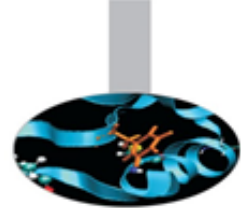


48th Ticket Meeting

HPC User Support @ CINECA
December, 11th 2020



Content Overview

- Status of the clusters - main events affecting production [Nov 10 – Dec 10]
- Examination of active tickets on HPC-US-SECOND queue
 - escalated to Intel support
 - other tickets
- Ticket statistics on queue [reference period: Nov 6 - Dec 6]
 - HPC-US-FIRST
 - HPC-US-SECOND
- Module usage on Marconi-SKL

Status of the clusters Nov 10 – Dec 10

Main events affecting production



Nov 16th: announced a free online course “Introduction to new accelerated partition of Marconi” on November 24th
https://www.hpc.cineca.it/center_news/introduction-new-accelerated-partition-marconi-users-and-developers-free-online-course

Nov 17th: Updates on support of PGI and HPC-SDK modules on Marconi100 and Galileo clusters
https://www.hpc.cineca.it/center_news/updates-support-pgi-and-hpc-sdk-modules

Nov 19th: Scheduled maintenance of Marconi100 on November 25th
http://www.hpc.cineca.it/center_news/scheduled-maintenance-marconi100-november-25th
https://www.hpc.cineca.it/center_news/reminder-scheduled-maintenance-marconi100-november-25

Nov 25th: Scheduled maintenance of Marconi100 postponed to December 1st
https://www.hpc.cineca.it/center_news/todays-marconi100-maintenance-cancelled-and-postponed-december-1

Nov 30th
https://www.hpc.cineca.it/center_news/reminder-scheduled-maintenance-marconi100-december-1
https://www.hpc.cineca.it/center_news/marconi100-back-production-4

Dec 2nd: issue on Marconi100 scratch filesystem
https://www.hpc.cineca.it/center_news/marconi100-issue-scratch-filesystem

Dec 3rd: Marconi100 update on filesystem issue
http://www.hpc.cineca.it/center_news/marconi100-update-filesystem-issue

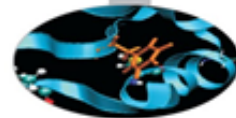
Dec 7th: help desk service closed on December 8
https://www.hpc.cineca.it/center_news/help-desk-service-closed-tomorrow

Tickets escalated to Intel support



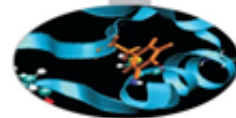
Ticket	Subject	Creation date	Last Updated by Intel	Comments
49 (resolved)	Internal compiler error when using openmp simd clause (nilsm@ipp.mpg.de)	22/02/2019 15:22:02	24/11/2020	<p>Intel support filed a bug to be fixed: CMPLRIL0-31246 → resolved New bug shown because of the first: CMPLRIL0-32318 → open (bug in the vectorizer)</p> <p>This bug will be corrected in version 19.2 beta compiler version (Intel oneAPI 2021.1 Beta)</p> <p>Intel support:</p> <ul style="list-style-type: none"> provided an engineering build of the Intel Fortran compiler to this ticket that has been installed on intel modules 2019 and 2020 (profile/candidate). suggested to make a modification to the users' original program by adding the interface module but with in addition the OMP declaration directive (!\$OMP DECLARE FUNCTION directive) also in it. <p>The modified code was tested with both the compilers, and it could be compiled and run successfully.</p> <ul style="list-style-type: none"> Intel 2020 Update 4 has been recently released and it has been installed on the candidate modules profile on Marconi cluster. This update contains the bug fix that has been successfully tested with users' code.
3932	Pointers to module arrays not working with SIMD (nilsm@ipp.mpg.de)	18/09/2019 17:24:02	08/10/2020	<p>Intel support filed a bug to be fixed: CMPLRIL0-32332</p> <p>This bug will be corrected in version 19.2 beta compiler version (Intel oneAPI 2021.1 Beta)</p> <p>Intel Support could successfully ran the reproducer provided (no SegV, answers are all 0s). They expect to see this fix in PSXE 2020 Update 4 (Fortran compiler 19.1.3) available within the month. Tests performed with 2020 Update 4 are still underway.</p>

Other active tickets on HPC-US-SECOND



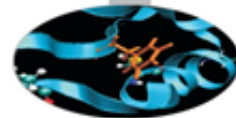
Ticket	Subject	Requestors	Created	Host	Supp. Level	Comments
9462	Marconi100 issue 3 from the pre-production testing: Low X Bus bandwidth during Nvidia P2P benchmark	serhiy.mochalskyk@ipp.mpg.de	2020-05-12 16:48:02	M100	2nd IBM Nvidia	<p>Results from tests show values close to the theoretical value bandwidth during the communication of 2 GPUs inside one socket.</p> <p>During the communication between two GPUs on different sockets the bandwidth decreases to ~39 GB/s for Bi-directional communication having the theoretical value of 64 GB/s.</p> <p>To discuss with IBM and Nvidia to reach a better understanding of how the communications intersocket work whether p2p is enabled or not.</p> <p>Nvidia tested the p2p communication tool coming with the Cuda suite, and they also notice the problem when the communication involves extra-socket GPUs. The main focus of the investigation is currently on Osu.</p>
9677	Marconi100 problem with GPU OpenMPI library	serhiy.mochalskyk@ipp.mpg.de	2020-05-18 11:00:01	M100	2nd IBM	<p>The user reported problems with GNU OpenMPI on Marconi100. To avoid conflicts with Spectrum MPI pmix support, we had to rebuild slurm against the same pmix libraries used by Spectrum MPI. This forced us to rebuild OpenMPI as well, but we still have some problems to make it properly work. We asked assistance to our IBM contact people to properly configure OpenMPI to provide the desired advanced GPU features and mellanox optimization support.</p> <p>We expect to perform a system stack upgrade in the forthcoming weeks. Further tests will be performed after this upgrade.</p>

Other active tickets on HPC-US-SECOND



Ticket	Subject	Requestors	Created	Host	Supp. Level	Comments
13202	Gitlab Runner on Marconi	thomas.aj.body@gmail.com	2020-10-22 11:16:01	SKL	1st	The user asked for the possibility of running a CI/CD Gitlab runner on Marconi SKL. At present Gitlab runner is not installed on our clusters because of security issues. It is under study the set up of a service where we can allow users to run their gitlab runners with full security, in the meantime we decided to allow users to install and use their gitlab runners on login nodes.
13484	Problemi con openacc codice Cariddi, progetto IscrC_HiPSparC	andreagaetano.chiariello@unicampania.it	2020-11-04 12:04:02	M100	2nd	The user has requested support on the usage of openacc to accelerate their codes.
14059	CUDA with C++14 on m100	mcole@pppl.gov	2020-11-26 23:20:02	M100	2nd	The user is trying the installation of (ECP-copa) cabana library that seems to need C++14, and depend on the kokkos compiler interface (nvcc_wrapper). The kokkos library is compiled correctly when using the default gnu compiler 4.8.5 which does not support C++14, and fails when using the gnu/8.4.0 module. Investigations are underway.

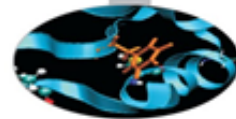
Other active tickets on HPC-US-SECOND



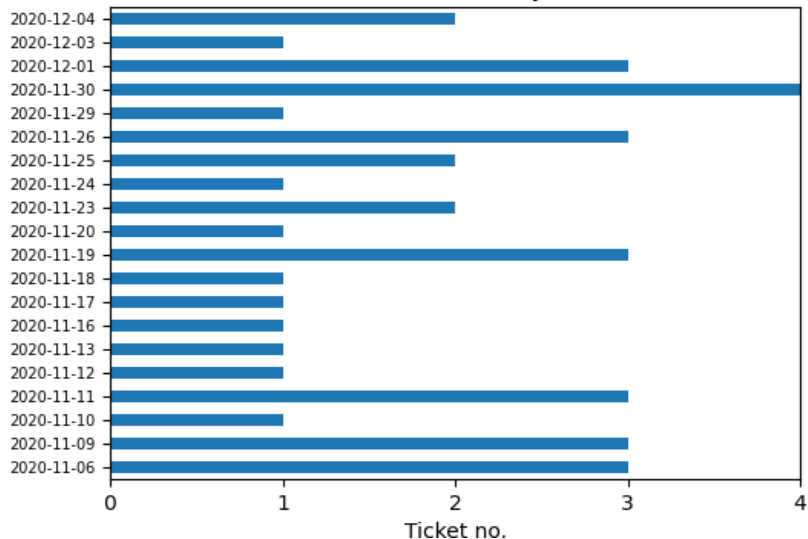
Ticket	Subject	Requestors	Created	Host	Supp. Level	Comments
14097	Running jobs in parallel	d.boeyaert@fz-juelich.de	2020-11-30 13:06:02	SKL	1st	The user has asked for information on how to run several simulations contemporarily on a SKL compute node (as a single simulation run on 10 cores and SKL nodes are given in exclusive way).
14109	run SSH singularity Marconi	albert.gutierrez@bsc.es	2020-11-30 16:32:01	SKL	2nd	The user is worknig with singularity to prepare several containers to run MPI. He is experiencing issues with the configuration of SSH required for the communication between the containers. Investigations are underway.
14301	Failed job of the EUTERPE code from the 3 code benchmark	serhiy.mochalsky@ipp.mpg.de	2020-12-08 13:42:02	SKL	2nd	We have done preliminary checks on the server log for this failed job but no indicative messages were found. Further checks on the compute nodes involved are underway.

Ticket Statistics Nov 6 - Dec 6

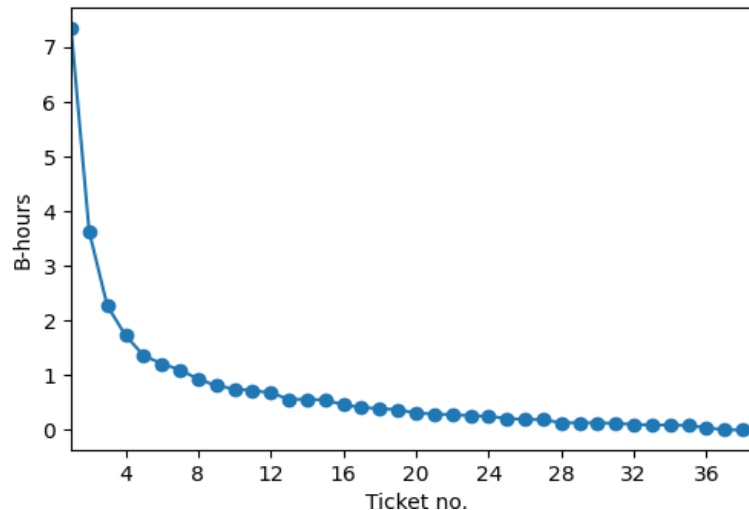
HPC-US-FIRST & HPC-US-SECOND



Received tickets by date



Business hours from ticket creation to initial address
HPC US FIRST & HPC US SECOND



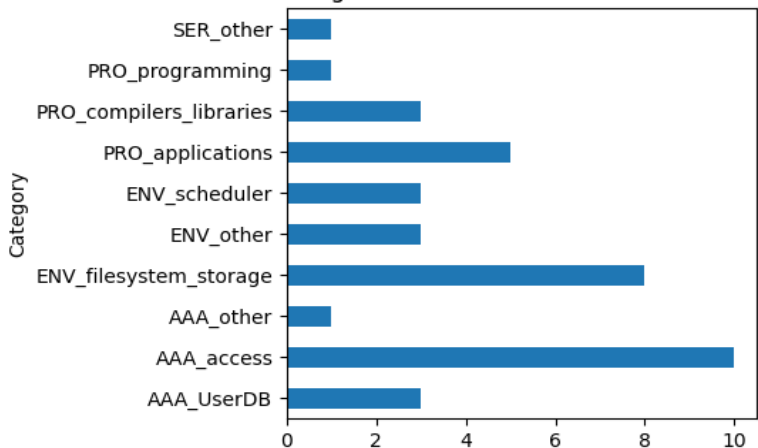
TOTAL → 38 tickets
 - HPC-US-FIRST → 24
 - escalated to HPC-US-SECOND → 14

Ticket statistics

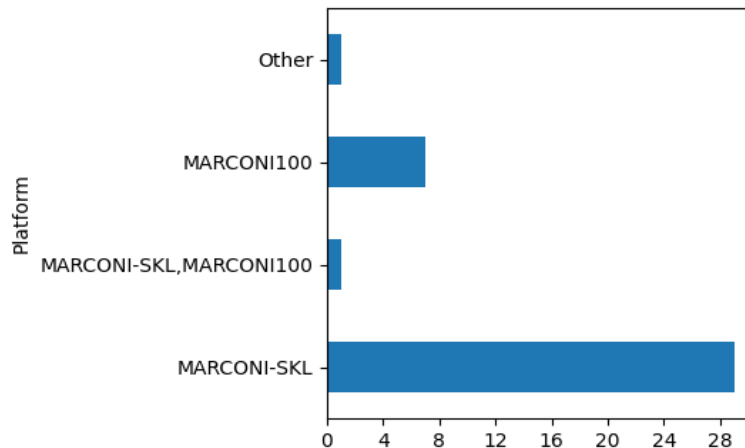
Nov 6 - Dec 6
HPC-US-FIRST & HPC-US-SECOND



Ticket categories on HPC-US-FIRST & HPC-US-SECOND

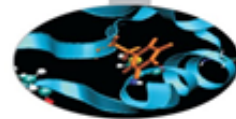


Classification of tickets by platform
HPC-US-FIRST & HPC-US-SECOND

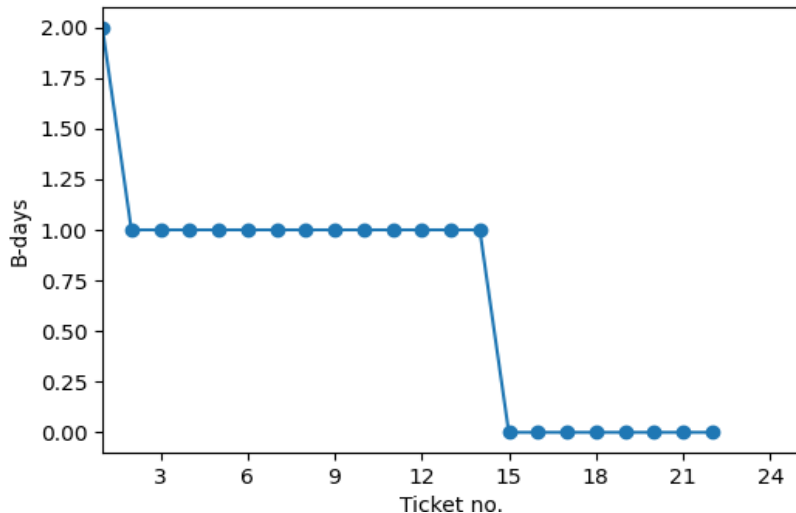


Ticket statistics Nov 6 - Dec 6

HPC-US-FIRST & HPC-US-SECOND

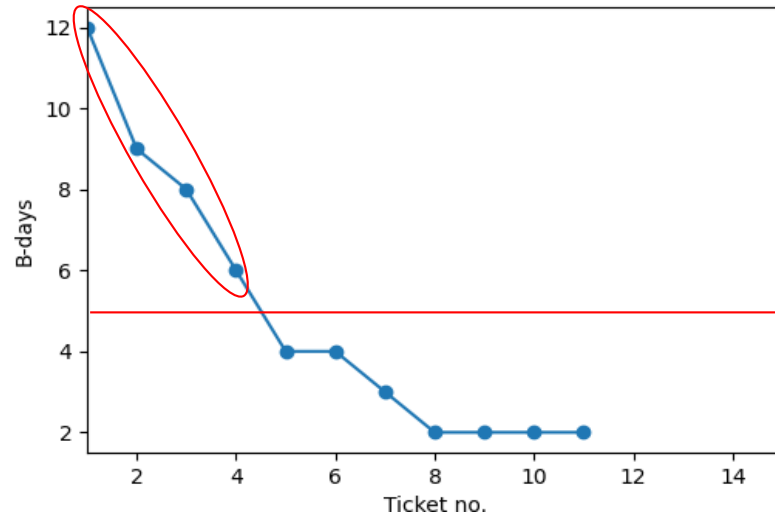


time from ticket creation to ticket resolution
HPC US FIRST



22 / 24 resolved tickets

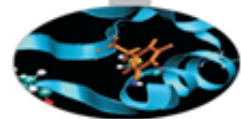
time from ticket creation to ticket resolution
HPC-US-SECOND



11 / 14 resolved tickets

Ticket statistics Nov 6 - Dec 6

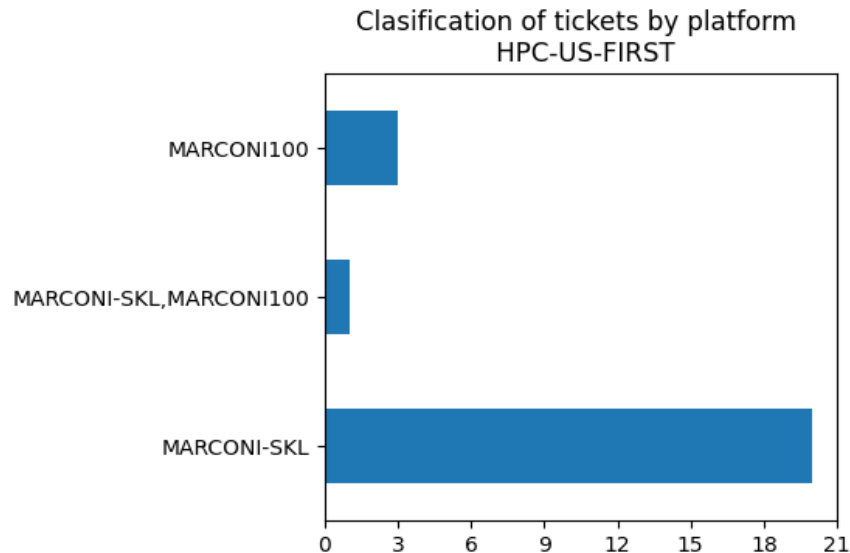
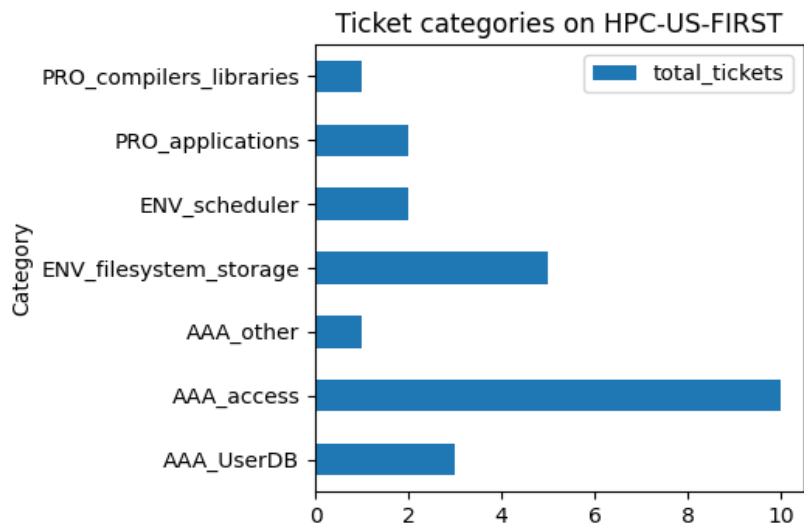
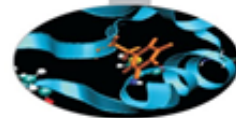
HPC-US-SECOND



Ticket	Days	Creation time	Requestor	Subject	Notes
13666	12	2020-11-11 09:37:25	K.L.vandePlassche@diffen.nl	Netcdf - Tensorflow incompatibility	We have installed a new nectdf module that uses the same hdf5 module used by the tensorflow module to allow their compatibility.
13835	9	2020-11-19 00:52:02	jason.parisi@physi.cs.ox.ac.uk	Python package errors	We have supported the user into the fix of an old python virtual environment that was causing issues when trying to install and/or use modules.
13586	8	2020-11-09 11:16:02	serhiy.mochalsky@ipp.mpg.de	Marconi 100 problem with the node r231n14 (urgent)	The node reported by the user was immediately put out of production and tested.
13964	6	2020-11-24 20:46:01	rhs.doyle45@mail.dcu.ie	Marconi FUSIO_ALL Access	The user requested access as a collaborator to the FUSIO_ALL account.

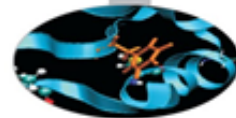
Ticket statistics Nov 6 - Dec 6

HPC-US-FIRST



Ticket statistics Nov 6 - Dec 6

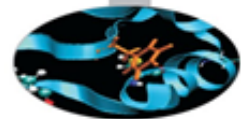
HPC-US-FIRST



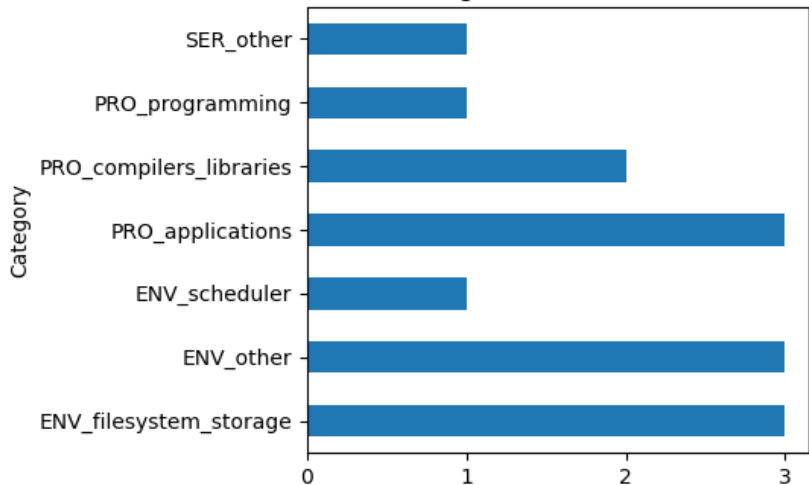
HPC-US-FIRST		By status		By platform		
		open	resolved	SKL	SKL&M100	M100
Information	AAA_access		3	3		
	AAA_UserDB		2	2		
	ENV_filesystem_storage		1	1		
	ENV_scheduler		1	1		
	PRO_applications	1		1		
Problem	AAA_access		3	2	1	
	ENV_filesystem_storage		2	1		1
	ENV_scheduler		1	1		
	PRO_applications		1	1		
	PRO_compilers_libraries		1			1
Service Request	AAA_access		4	3		1
	AAA_UserDB	1		1		
	AAA_other		1	1		
	ENV_filesystem_storage		2	2		
total	24	2	22	20	1	3

Ticket statistics Nov 6 - Dec 6

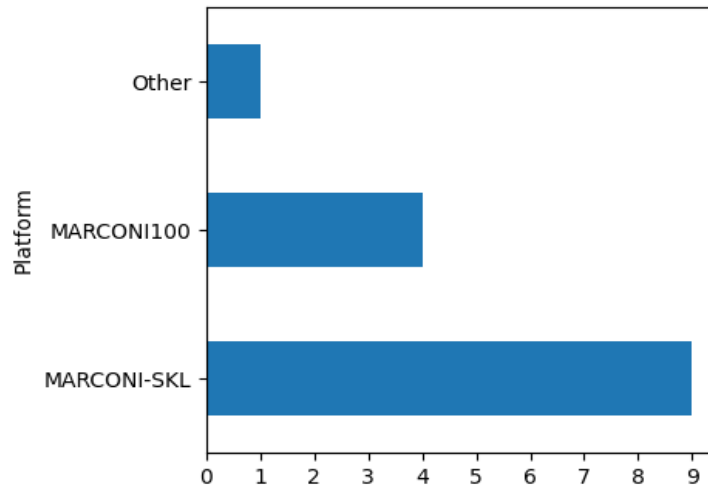
HPC-US-SECOND



Ticket categories on HPC-US-SECOND

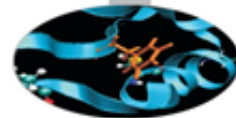


Classification of tickets by platform
HPC-US-SECOND



Ticket statistics Nov 6 - Dec 6

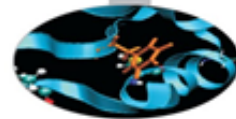
HPC-US-SECOND



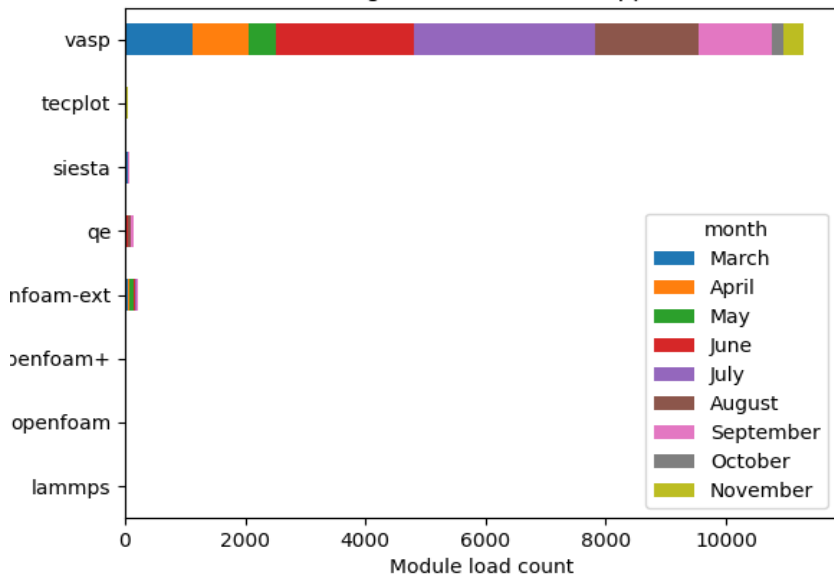
HPC-US-SECOND		By status		By platform		
		open	resolved	SKL	M100	Other
Information	ENV_scheduler	1		1		
	PRO_compilers_libraries	1			1	
Problem	ENV_filesystem_storage		1	1		
	ENV_other		3	2	1	
	PRO_applications	1	2	2	1	
	PRO_compilers_libraries		1	1		
	PRO_programming		1		1	
	SER_other		1	1		
Service Request	ENV_filesystem_storage		2	1		1
total	14	3	11	9	4	1

Module usage on Marconi-SKL

Batch jobs (March 1 - Oct 31) 4th cycle allocation



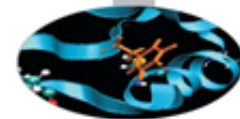
Modules usage on Marconi-SKL: applications



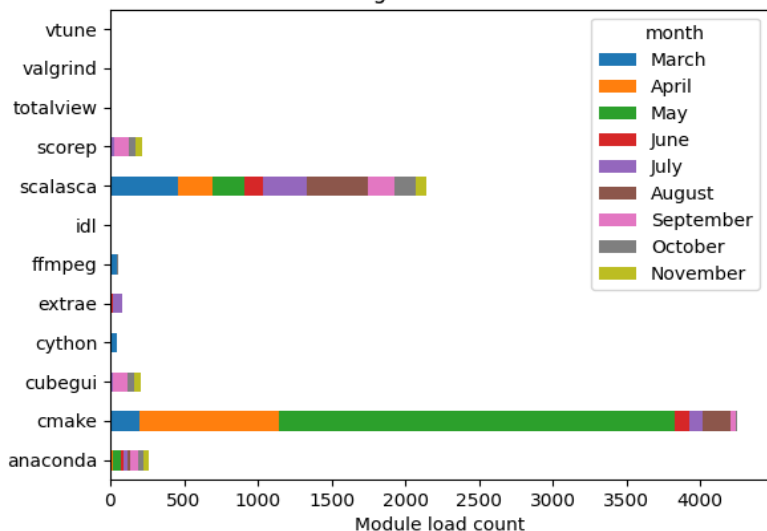
	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
lammmps	7							16	
openfoam	16	1		3		1	13		
openfoam+							2		
openfoam-ext	46	28	80	25	8		40		
qe		4		33	20	29	59		
siesta	41	3	13				3		
tecplot					3	3	10	12	22
vasp	1129	934	454	2301	2999	1722	1234	177	353

Module usage on Marconi-SKL

Batch jobs (March 1 - Oct 31) 4th cycle allocation



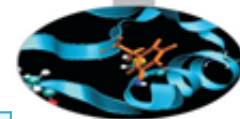
Modules usage on Marconi-SKL: tools



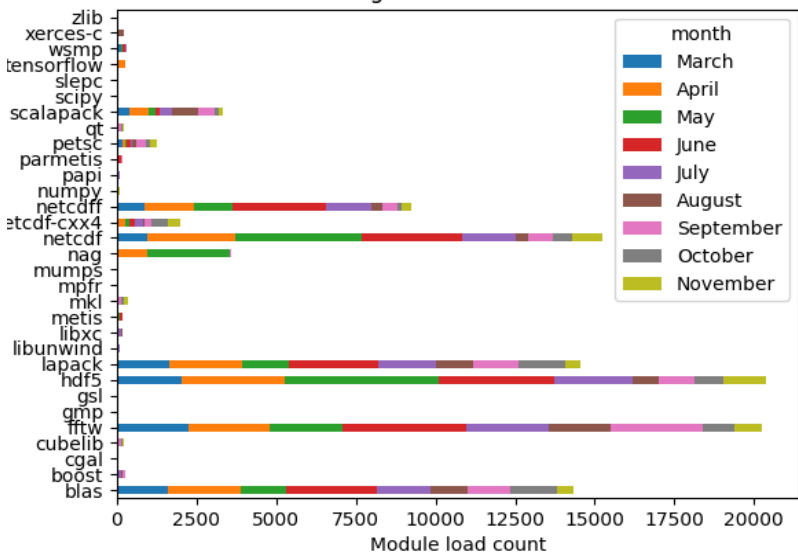
	March	April	May	June	July	Aug	Sept	Oct	Nov
anaconda		22	50	18	29	19	51	37	38
cmake	197	951	2683	97	89	188	41	3	5
cubegui					16	4	100	42	41
cython	43								
extrae				17	64				
ffmpeg	44				2			6	
idl									1
scalasca	461	236	217	123	293	418	177	148	71
scorep					25	4	100	42	41
totalview			2	4					
valgrind	2	2							
vtune									1

Module usage on Marconi-SKL

Batch jobs (March 1 - Oct 31) 4th cycle allocation



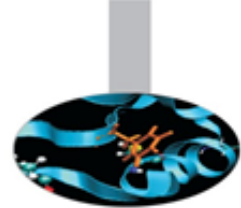
Modules usage on Marconi-SKL: libraries



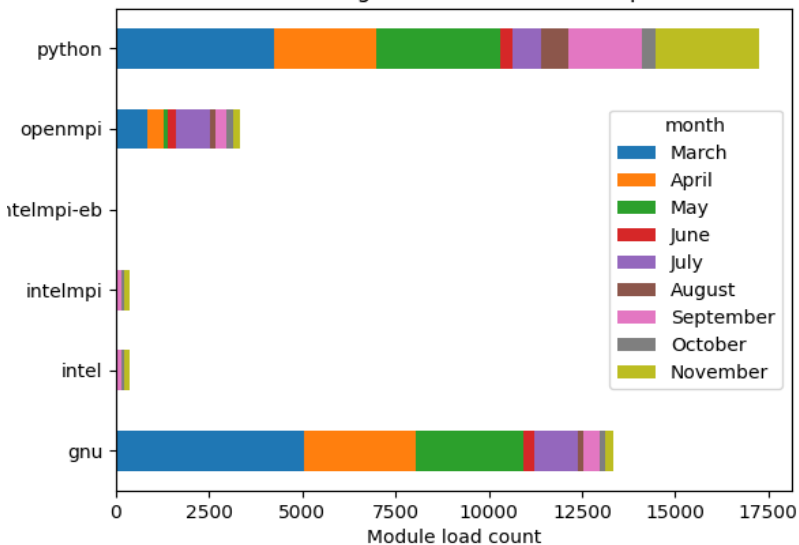
	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
blas	1577	2308	1444	2838	1691	1151	1358	1451	514
boost	16	1		3	101	35	96		
cgal							2		
cubelib					25	4	99	44	41
fftw	2229	2569	2270	3883	2592	1934	2892	1020	870
gmp							2		
gsl					10				
hdf5	2032	3236	4815	3652	2449	821	1127	911	1348
lapack	1620	2304	1458	2838	1777	1177	1444	1433	515
libunwind				17	64				
libxc					137	47		7	
metis		12	58	82			35		
mkl	7						140	81	118
mpfr							2		
mumps		12	14				35		
nag	2	960	2558	23	13		24	1	2
netcdf	946	2766	3985	3142	1679	410	753	615	932
netcdf-cxx4	58	215	127	150	260	69	189	513	391
netcdf	862	1561	1198	2949	1406	341	503	98	317
numpy	41	3	14						10
papi				17	66				
parmetis		12	52	81			36		
petsc	162	83	74	104	58	109	314	126	241
qt					16	4	101	44	41
scalapack	379	596	252	93	415	819	522	122	137
scipy	2							9	
slepc						1		9	
tensorflow		264					1		2
wsmp	128	7	59	86	11				
xerces-c	49	4	5	3		152			
zlib							2		

Module usage on Marconi-SKL

Batch jobs (March 1 - Sept 30) 4th cycle allocation



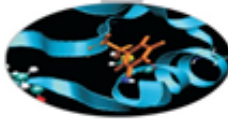
Modules usage on Marconi-SKL: compilers



	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
gnu	5062	2981	2871	318	1147	163	418	172	195
intel	8						140	87	119
intelmpi	8						140	87	118
intelmpi-eb			2						
openmpi	842	443	106	206	925	145	301	168	192
python	4230	2757	3334	300	787	739	1952	371	2796

Module usage on Marconi-SKL

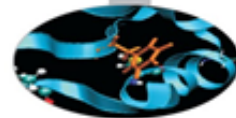
Batch jobs - October 2020 - 4th cycle allocation



category	modulename	partition	qos	module_load_count	elapsed_timelimit_sum
application	openfoam-ext	skl_fua_prod	normal	6	3,26
	qe	skl_fua_prod	normal	22	3,43
	siesta	skl_fua_prod	skl_qos_fualprod	8	6,26
	tecplot	skl_fua_dbg	normal	4	2,5
		skl_fua_prod	normal	17	8,59
	vasp	skl_fua_prod	normal	1626	353,19

Module usage on Marconi-SKL

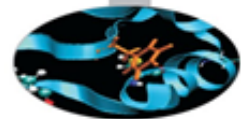
Batch jobs - October 2020 - 4th cycle allocation



category	modulename	partition	qos	module_load_count	elapsed_timelimit_sum
library (l)	blas	bdw_all_serial	normal	17	10,63
		skl_fua_dbg	normal	108	18,32
		skl_fua_prod	normal	1750	541,98
			skl_qos_fuabprod	21	14,84
	boost	skl_fua_prod	normal	10	4,85
			skl_qos_fuabprod	2	2
	cubelib	skl_fua_prod	normal	190	153,76
	fftw	bdw_all_serial	normal	16	12,72
		skl_fua_dbg	normal	143	67,73
		skl_fua_prod	normal	2979	1012,54
			skl_qos_fuabprod	37	19,55
			skl_qos_fualprod	10	0,4
		skl_usr_dbg	qos_rcm	24	22,13
	hdf5	bdw_all_serial	normal	144	54,31
		skl_fua_dbg	normal	235	57,24
		skl_fua_prod	normal	2132	799,54
			skl_qos_fuabprod	11	4,64
			skl_qos_fualow prio	3	3
			skl_qos_fualprod	58	33,19
		skl_usr_dbg	qos_rcm	24	22,13

Module usage on Marconi-SKL

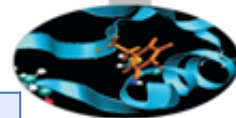
Batch jobs - October 2020 - 4th cycle allocation



category	modulename	partition	qos	module_load_count	elapsed_timelimit_sum
library (ll)	lapack	bdw_all_serial	normal	17	10,63
		skl_fua_dbg	normal	106	18,29
		skl_fua_prod	normal	1828	555,39
	skl_qos_fuabprod		22	15,85	
	mkl	skl_fua_prod	normal	109	57,06
	nag	skl_fua_dbg	normal	1	1,01
		skl_fua_prod	normal	1	0,12
	netcdf	bdw_all_serial	normal	144	54,31
		skl_fua_dbg	normal	229	56,67
		skl_fua_prod	normal	1506	472,92
			skl_qos_fuabprod	9	3,18
			skl_qos_fualow prio	3	3
			skl_qos_fualprod	62	35,59
		skl_usr_dbg	qos_rcm	24	22,13
	netcdf-cxx4	bdw_all_serial	normal	119	39,19
		skl_fua_dbg	normal	121	26,74
		skl_fua_prod	normal	91	19,15
			skl_qos_fualprod	51	27,27

Module usage on Marconi-SKL

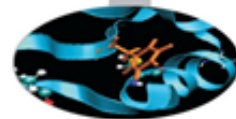
Batch jobs - October 2020 - 4th cycle allocation



category	modulename	partition	qos	module_load_count	elapsed_timelimit_sum
library (III)	netcdf	bdw_all_serial	normal	25	15,12
		skl_fua_dbg	normal	107	28,93
		skl_fua_prod	normal	1189	366,56
			skl_qos_fuabprod	9	3,18
			skl_qos_fualow prio	3	3
		skl_qos_fualprod	8	6,26	
		skl_usr_dbg	qos_rcm	24	22,13
	petsc	skl_fua_dbg	normal	49	18,03
		skl_fua_prod	normal	420	235,71
			skl_qos_fuabprod	13	4,1
	qt	skl_fua_prod	normal	189	152,77
	scalapack	bdw_all_serial	normal	13	10,37
		skl_fua_prod	normal	266	182,69
			skl_qos_fuabprod	15	12,42
	tensorflow	skl_fua_dbg	normal	2	2,01
	netcdf	bdw_all_serial	normal	25	15,12
		skl_fua_dbg	normal	107	28,93
		skl_fua_prod	normal	1189	366,56

Module usage on Marconi-SKL

Batch jobs - October 2020 - 4th cycle allocation



category	modulename	partition	qos	module_load_count	elapsed_timelimit_sum
tool	anaconda	bdw_all_serial	normal	47	41,49
		skl_fua_dbg	normal	8	5,38
		skl_fua_prod	normal	7	0,8
	cmake	bdw_all_serial	normal	20	12,98
		skl_fua_dbg	normal	1	1,01
		skl_fua_prod	normal	49	16,02
			skl_qos_fuabprod	5	1,43
	cubegui	skl_fua_prod	normal	191	154,76
	ffmpeg	skl_fua_prod	normal	35	4,72
	idl	bdw_all_serial	normal	19	16,06
		skl_fua_prod	normal	13	4
	scalasca	skl_fua_prod	normal	222	173,8
	scorep	skl_fua_prod	normal	191	154,76
vtune	skl_fua_dbg	normal	1	0	

Module usage on Marconi-SKL

Batch jobs - October 2020 - 4th cycle allocation



category	modulename	partition	qos	module_load_count	elapsed_timelimit_sum
compiler	gnu	skl_fua_dbg	normal	1	1,01
		skl_fua_prod	normal	498	285,94
	skl_qos_fualprod		2	0,21	
	intel	skl_fua_prod	normal	110	57,53
	intelmpi	skl_fua_prod	normal	109	57,06
	openmpi	skl_fua_dbg	normal	2	2,01