# 49th Ticket Meeting

HPC User Support @ CINECA
January, 14th 2021
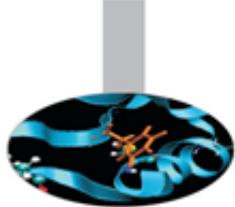
Content Overview

- Status of the clusters - main events affecting production [Dec 11 - Jan 13]

- Examination of active tickets on HPC-US-SECOND queue

    - escalated to Intel support
    - other tickets

- Ticket statistics on queue [reference period: Dec 7 – Jan 10]

    - HPC-US-FIRST
    - HPC-US-SECOND

- Module usage on Marconi-SKL [December 2020]
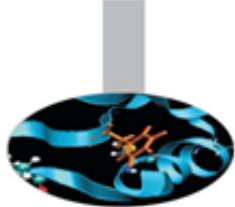
Dec 14: Scheduled maintenance of Marconi on December 15
https://www.hpc.cineca.it/center_news/scheduled-maintenance-marconi-december-15

Dec 15: Slurm scheduler updated to version 20.02.06 on Marconi cluster; defined a new feature "vtune" for requesting the assigned nodes to load the sampling (sep5) drivers, enabling the hardware event-based sampling (EBS).
https://www.hpc.cineca.it/center_news/marconi-maintenance-completed-and-update-intel-vtune

Dec 22: resolved issue on the Scratch filesystem that was causing errors as "No space left on device"
https://www.hpc.cineca.it/center_news/marconi100-issue-scratch-filesystem-solved

Dec 23: announced issues on Marconi-100 login nodes (login03)
https://www.hpc.cineca.it/center_news/m100-login-issue-0

Dec 23: Help Desk Service non available on Dec 24, 25 and 26.
https://www.hpc.cineca.it/center_news/help-desk-service-xmas-time-0

Dec 30: updates on the Help Desk service calendar
https://www.hpc.cineca.it/center_news/help-desk-service-calendar

Jan 11: Scheduled maintenance of Marconi on January 12
https://www.hpc.cineca.it/center_news/scheduled-maintenance-marconi-tomorrow-12th-january
https://www.hpc.cineca.it/center_news/marconi-back-production-35

**Jan 11:** activation of cleaning procedure on Marconi100 scratch area
https://www.hpc.cineca.it/center_news/marconi100-activation-procedure-prevent-scratch-filling

Tickets escalated to Intel support
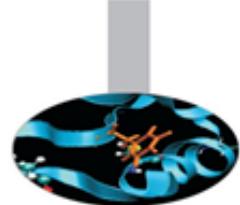
| Ticket	Subject	Creation date	Last Updated by Intel	Comments
3932	Pointers to module arrays not working with SIMD (nilsm@ipp.mpg.de)	18/09/2019 17:24:02	**16/12/2020**	Intel support filed a bug to be fixed: CMPLRIL0-32332 This bug will be corrected in version 19.2 beta compiler version (Intel oneAPI 2021.1 Beta) 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 confirmed that the issue is still there. Intel checked the issue with the last two compiler releases and reported that it worked; they provided a gzip'd tar file with the source, BUILD script and output files from the BUILD script. We have reported this information to the user.

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.mochalskyy @ipp.mpg.de	2020-05-12 16:48:02	M100	2nd IBM Nvidia	Results from tests show values close to the theoretical value bandwidth during the communication of 2 GPUs inside one socket. 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. To discuss with IBM and Nvidia to reach a better understanding of how the communications intersocket work whether p2p is enabled or not. 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.
9677	Marconi100 problem with GPU OpenMPI library	serhiy.mochalskyy @ipp.mpg.de	2020-05-18 11:00:01	M100	2nd IBM	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. We expect to perform a system stack upgrade in the forthcoming weeks. Further tests will be performed after this upgrade.

Other active tickets on HPC-US-SECOND

| Ticket	Subject	Requestors	Created	Host	Supp. Level	Comments
13850	nvidia hpc-sdk + cuda	Thomas Hayward-Schneider <thomas.hayward @ipp.mpg.de>	2020-11-19 14:54:02	M100	nvidia	The user has been supported for the compilation of his code (orb5) using hpc-sdk/2020--binary, gnu/8.4.0, and cuda/11.1 modules available on M100 cluster. The compilation of this code fails (but it could be correctly compiled with pgi/19.10 + default cuda module), we have escalated this to nvidia support.
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.
14725	errori con MPI...	gregorio.vlad@enea.it	2020-12-24 16:06:02	SKL	1st	The user has reported some failed jobs that might be failed due to some issues on the assigned compute nodes. Investigations are underway.
14822	error on Marconi 100	adisi@ipp.mpg.de	2021-01-04 15:18:01	M100	1st	The user has reported an error when running his code that run succesfully in the past weeks. We checked the involved nodes that showed no issues, further investigations in progress.
14912	Connect globus to cineca	K.L.vandePlassche @differ.nl	2021-01-08 12:24:02	User DB	Esc MW	The user is experiencing issues to add his new x509 certificate into his personal page on our UserDB site.

Other resolved tickets on HPC-US-SECOND

| Ticket	Subject	Requestors	Created	Host	Supp. Level	Comments
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. We managed to compile both kokkos and cabana on Marconi100 and provided the user all steps for a local installation.
14301	Failed job of the EUTERPE code from the 3 code benchmark	serhiy.mochalskyy @ipp.mpg.de	2020-12-08 13:42:02	SKL	2nd	We repeated the failed run on the same 128 nodes. The very first time the job showed the same wrong behaviour, it stared and then did not write anything as output until the death of the job due to timelimit. All the logs were checked but we couldn't find again any error message. Since then, this job was relaunched about 50 times over again but all the times, the job worked properly obtaining correct results. We concluded that unfortunately, as the previous time this summer, this issue is not really reproducible so we cannot investigate it further.

Received tickets by date

Business hours from ticket creation to initial address
HPC US FIRST & HPC US SECOND
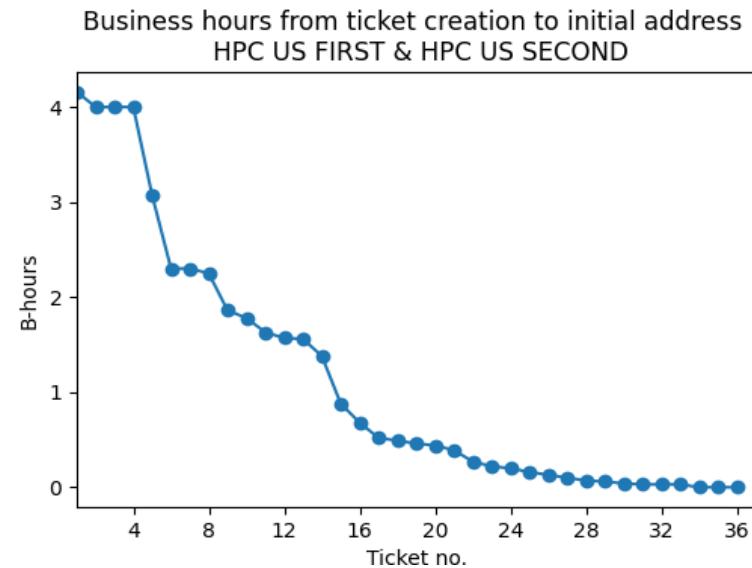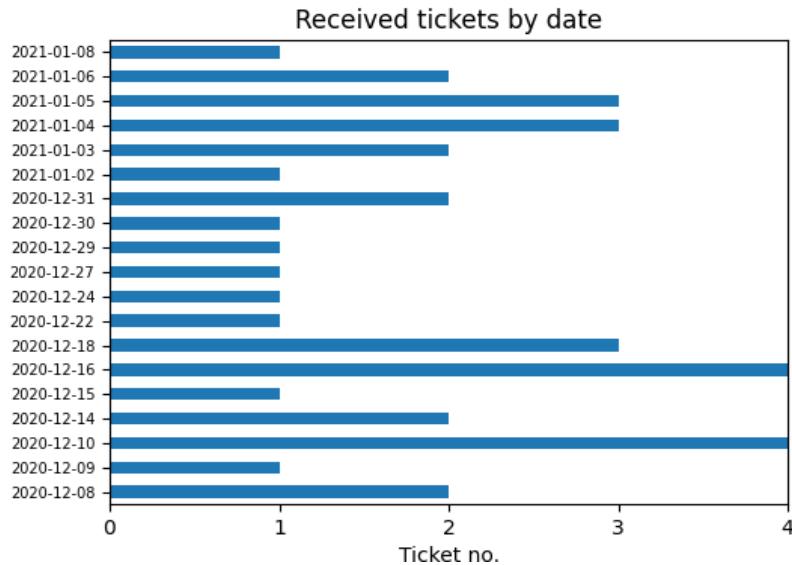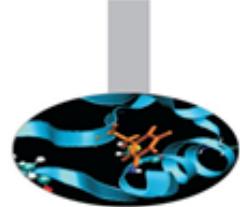
TOTAL   → **36** tickets
- HPC-US-FIRST   → **23**
- escalated to HPC-US-SECOND → **13**

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

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

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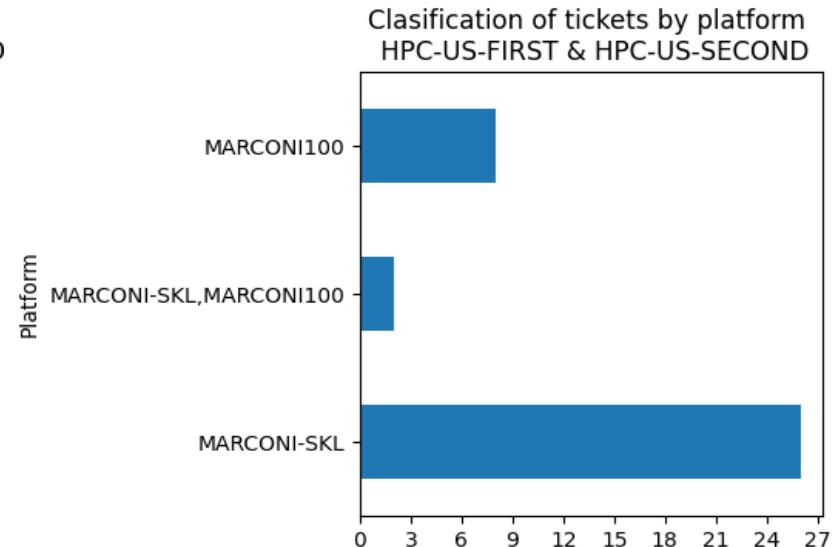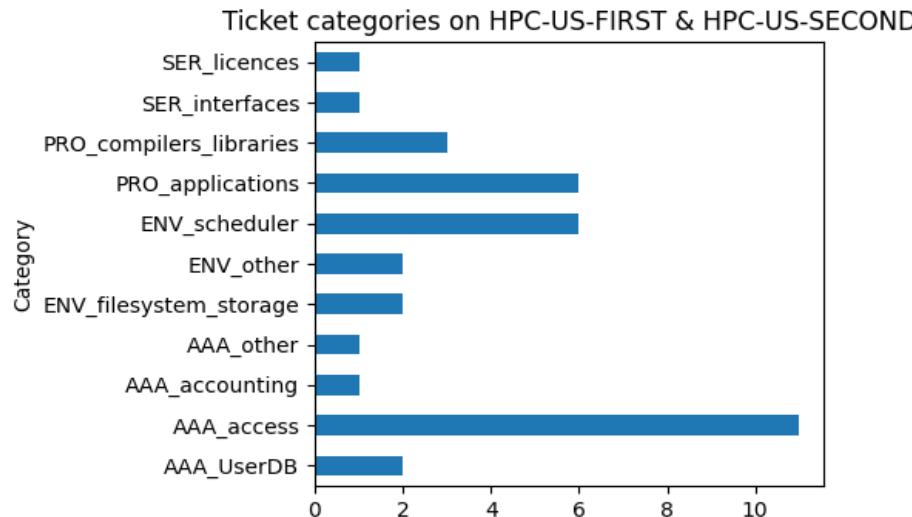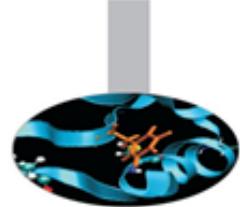
time from ticket creation to ticket resolution
HPC-US-SECOND

23 / 23 resolved tickets
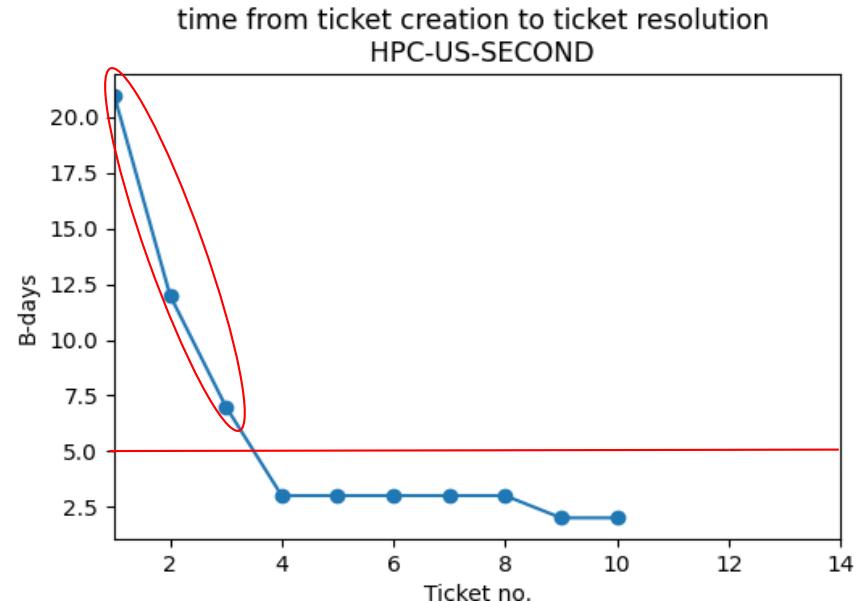
10 / 13 resolved tickets
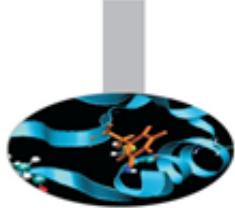
HPC-US-FIRST

Ticket	Days	Creation time	Requestor	Subject	Notes
14802	3	2020-12-09 15:42:01	Asahi.yuichi@jaea.go.jp	CUDA Aware MPI on Marconi100	We assisted the user to set up correctly parameters in the job script to run his OpenACC code.

HPC-US-SECOND

| Ticket	Days	Creation time	Requestor	Subject	Notes
14330	21	2020-12-09 15:42:01	francesco.iannone @enea.it	LAMMP su M100	The user reported errors when running lammps (kokkos) on Marconi100. We proposed a different set up in the job script for the job.
14679	12	2020-12-22 16:54:01	Benjamin.chapman @ukaea.uk	Unable to login to Marconi	The user experienced issues when trying to change his expired password on Marconi cluster.
14301	7	2020-12-08 13:42:02	Serhiy.mochalskyy @ipp.mpg.de	Failed job of the EUTERPE code from the 3 code benchmark	(details on previous slide no. 7)

Ticket categories on HPC-US-FIRST

Clasification of tickets by platform
HPC-US-FIRST
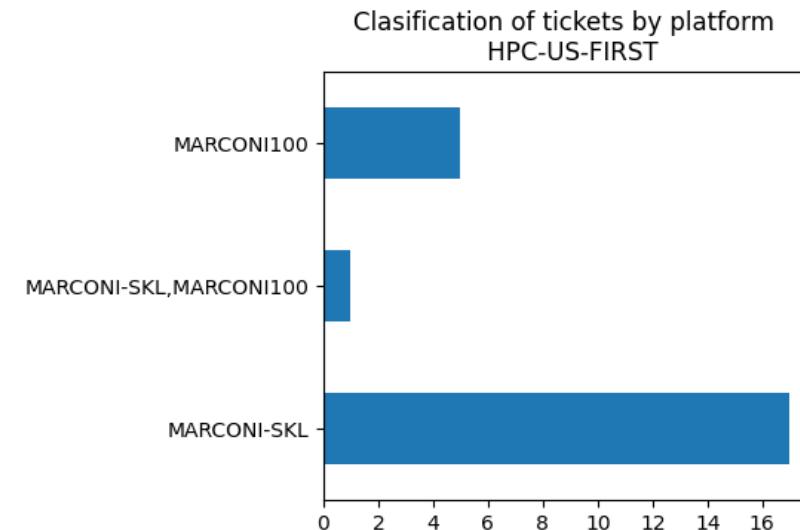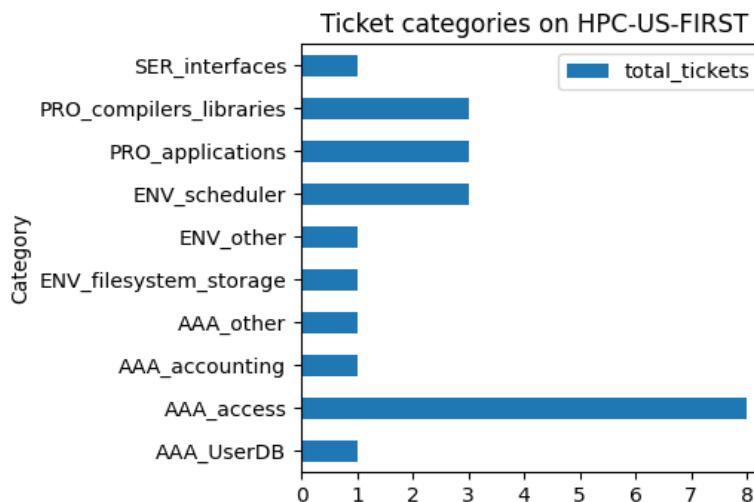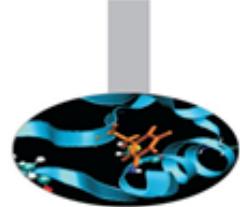
Ticket statistics Dec 7 – Jan 10
HPC-US-FIRST
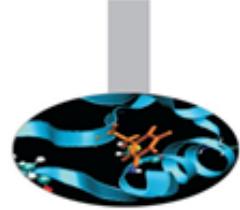
HPC-US-FIRST		By status		By platform		
		resolved		SKL	SKL&M100	M100
Information	AAA_access	1		1		
	AAA_other	1			1	
	ENV_scheduler	1		1		
	PRO_applications	1		1		
	PRO_compilers_libraries	1				1
Problem	AAA_access	2		1		1
	ENV_filesystem_storage	1				1
	ENV_other	1		1		
	ENV_scheduler	2		2		
	PRO_applications	2		1		1
	PRO_compilers_libraries	2		2		
	SER_interfaces	1				1
Service Request	AAA_access	5		5		
	AAA_UserDB	1		1		
	AAA_accounting	1		1		
total	**23**	**23**		**17**	**1**	**5**

Ticket categories on HPC-US-SECOND

Clasification of tickets by platform
HPC-US-SECOND

Ticket statistics Dec 7 – Jan 10
HPC-US-SECOND
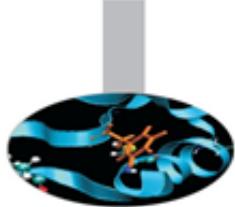
HPC-US-SECOND			By status			By platform		
			open	resolved		SKL	SKL&M100	M100
Information	ENV_scheduler			2		2		
Problem	AAA_UserDB		1				1	
	AAA_access			3		3		
	ENV_other		1			1		
	PRO_applications		1	2		1		2
	SER_licenses			1		1		
Service Request	ENV_filesystem_storage			1		1		
	ENV_scheduler			1				1
total	13		3	10		9	1	3

Module usage on Marconi-SKL

Batch jobs Mar 1 – Dec 31

Modules usage on Marconi-SKL: applications
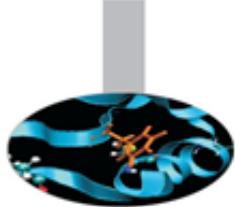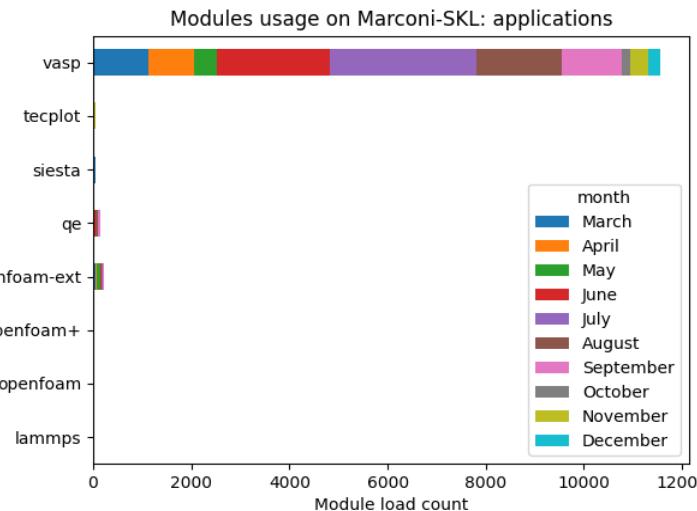
	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
lammps	7							16		
openfoam	16	1		3		1	13			
openfoam+							2			
openfoam-ext	46	28	80	25	8		40			
qe		4		33	20	29	59			
siesta	41	3	13				3			
tecplot					3	3	10	12	22	2
vasp	1129	934	454	2301	2999	1722	1234	177	353	262

Batch jobs Dec 2020

category	modulename	partition	qos	module_load_count	elapsed_timelimit_sum
application	tecplot	skl_fua_prod	normal	2	0,366759259
	vasp	skl_fua_prod	normal	258	149,767338

Module usage on Marconi-SKL

Batch jobs Mar 1 – Dec 31

Modules usage on Marconi-SKL: tools
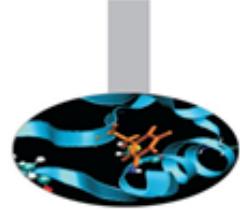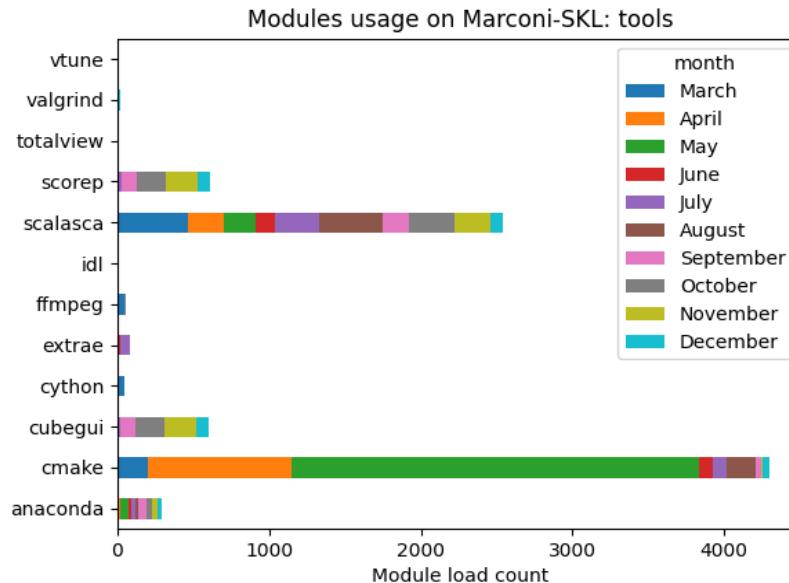
	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
anaconda		22	50	18	29	19	51	37	38	27
cmake	197	951	2683	97	89	188	41	3	5	49
cubegui					16	4	100	194	208	77
cython	43									
extrae				17	64					
ffmpeg	44				2			6		
idl									1	
scalasca	461	236	217	123	293	418	177	300	239	77
scorep					25	4	100	193	208	76
totalview			2	4						
valgrind	2	2								13
vtune									1	

Module usage on Marconi-SKL
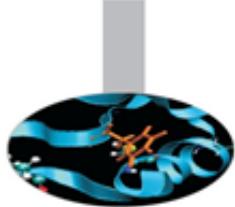
Batch jobs Dec 2020

category	modulename	partition	qos	module_load_count	elapsed_timelimit_sum
tool	anaconda	bdw_all_serial	normal	63	46,825
		skl_fua_dbg	normal	15	11,29083333
		skl_fua_prod	normal	10	9,029962963
	cmake	bdw_all_serial	normal	19	13,76173611
		skl_fua_dbg	normal	12	2,58309057
		skl_fua_prod	normal	51	4,705036959
	cubegui	skl_fua_prod	normal	77	47,69646991
	ffmpeg	skl_fua_prod	normal	14	6,757256944
	idl	bdw_all_serial	normal	26	20,36
		skl_fua_dbg	normal	1	1,002638889
		skl_fua_prod	normal	3	3,001039501
	scalasca	skl_fua_prod	normal	77	47,69646991
	scorep	skl_fua_prod	normal	76	46,69972222
	valgrind	skl_fua_dbg	normal	13	1,422083333

Module usage on Marconi-SKL
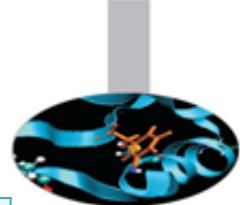
Batch jobs Mar 1 – Dec 31

Modules usage on Marconi-SKL: libraries
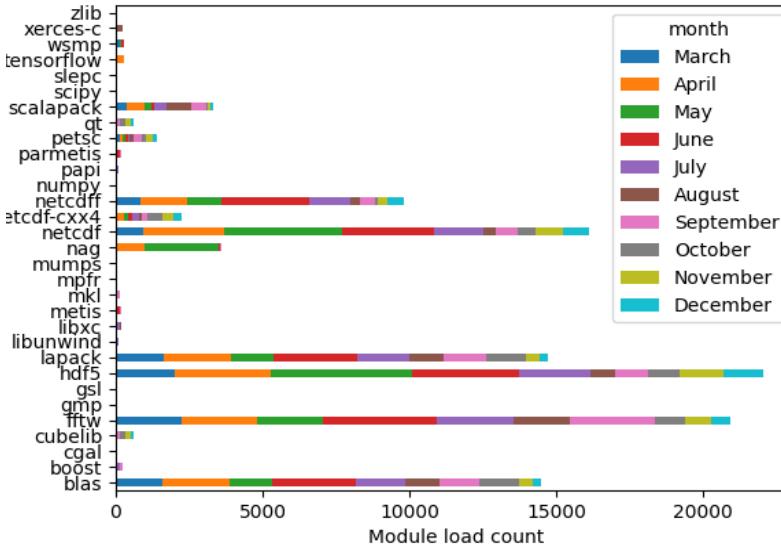
	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
blas	1577	2308	1444	2838	1691	1151	1358	1373	482	285
boost	16	1		3	101	35	96			
cgal							2			
cubelib					25	4	99	196	207	77
fftw	2229	2569	2270	3883	2592	1934	2892	1013	889	659
gmp							2			
gsl					10					
hdf5	2032	3236	4815	3652	2449	821	1127	1063	1516	1365
lapack	1620	2304	1458	2838	1777	1177	1444	1355	483	287
libunwind				17	64					
libxc					137	47		7		
metis		12	58	82			35			3
mkl	7						140			
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	893
netcdf-cxx4	58	215	127	150	260	69	189	513	391	271
netcdff	862	1561	1198	2949	1406	341	503	98	317	580
numpy	41	3	14							
papi					17	66				
parmetis		12	52	81			36			3
petsc	162	83	74	104	58	109	314	126	241	122
qt					16	4	101	196	206	77
scalapack	379	596	252	93	415	819	522	44	105	107
scipy	2							9		21
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
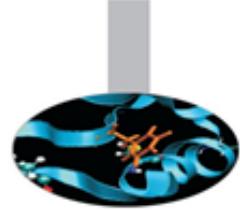
Batch jobs Dec 2020

| category	modulename	partition	qos	module_load_count	elapsed_timelimit_sum
Library (l)	blas	bdw_all_serial	normal	21	15,77180556
		skl_fua_dbg	normal	61	15,9894603
		skl_fua_prod	normal	3042	968,7251702
	boost	skl_fua_prod	normal	35	11,6174537
			skl_qos_fuabprod	13	7,094583333
	cubelib	skl_fua_prod	normal	77	47,69646991
	fftw	bdw_all_serial	normal	51	28,84826389
		skl_fua_dbg	normal	255	97,05515873
		skl_fua_prod	normal	3695	1298,829299
			skl_qos_fuabprod	51	5,230935546
			skl_qos_fualprod	8	2,879089506
	hdf5	bdw_all_serial	normal	121	39,58291667
		skl_fua_dbg	normal	304	94,45154762
		skl_fua_prod	normal	3642	1243,118439
			skl_qos_fuabprod	51	5,230935546
			skl_qos_fualprod	61	30,55767747
	lapack	bdw_all_serial	normal	20	14,77173611
		skl_fua_dbg	normal	55	14,5269603
		skl_fua_prod	normal	3051	965,706996
			skl_qos_fuabprod	13	7,094583333
	metis	skl_fua_prod	skl_qos_fualow prio	3	0,894537037
	mkl	skl_fua_prod	normal	71	20,77469907
	netcdf	bdw_all_serial	normal	115	39,57013889
		skl_fua_dbg	normal	182	45,94791667
		skl_fua_prod	normal	3010	975,8126824
			skl_qos_fuabprod	51	5,230935546
			skl_qos_fualprod	53	27,67858796

Module usage on Marconi-SKL

Batch jobs Dec 2020
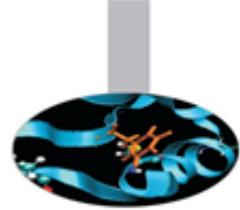
category	modulename	partition	qos	module_load_count	elapsed_timelimit_sum
Library (II)	netcdf-cxx4	bdw_all_serial	normal	69	9,700486111
		skl_fua_dbg	normal	102	20,76333333
		skl_fua_prod	normal	46	4,681087963
			skl_qos_fualprod	54	28,33043981
	netcdff	bdw_all_serial	normal	44	29,48034722
		skl_fua_dbg	normal	73	23,64763889
		skl_fua_prod	normal	2895	950,2576561
			skl_qos_fuabprod	7	3,842467532
	numpy	skl_fua_prod	normal	20	2,203576389
	parmetis	skl_fua_prod	skl_qos_fualow prio	3	0,894537037
	petsc	skl_fua_dbg	normal	1	1,002638889
		skl_fua_prod	normal	402	163,3689776
			skl_qos_fuabprod	53	5,23432675
	qt	skl_fua_prod	normal	77	47,69646991
	scalapack	bdw_all_serial	normal	20	14,76180556
		skl_fua_dbg	normal	15	4,008055556
		skl_fua_prod	normal	310	102,4825674
	scipy	skl_fua_dbg	normal	6	2,526944444
		skl_fua_prod	normal	15	1,277534722
	slepc	skl_fua_dbg	normal	1	1,002638889
		skl_fua_prod	normal	3	3,001039501

Module usage on Marconi-SKL
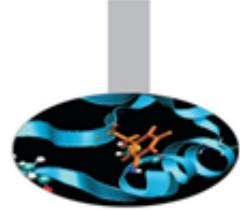
Batch jobs Mar 1 – Dec 31

Modules usage on Marconi-SKL: compilers
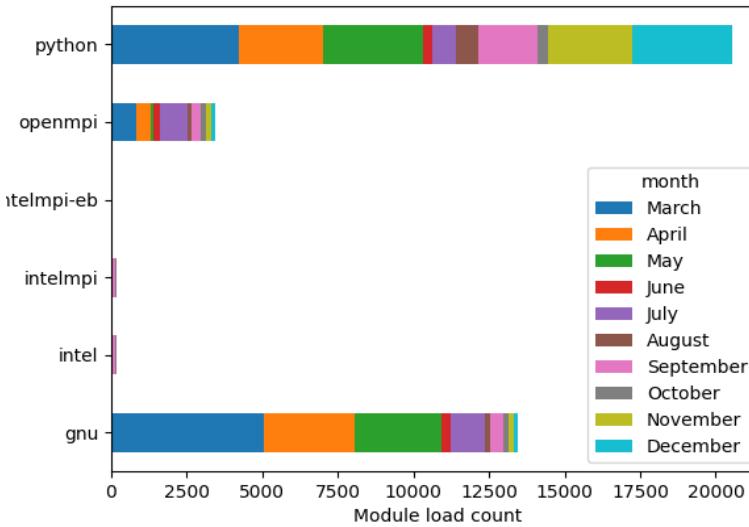
	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
gnu	5062	2981	2871	318	1147	163	418	172	195	103
intel	8						140	5		
intelmpi	8						140	5		
intelmpi-eb			2							
openmpi	842	443	106	206	925	145	301	168	192	91
python	4230	2757	3334	300	787	739	1952	371	2787	3304

category	modulename	partition	qos	module_load_count	elapsed_timelimit_sum
compiler	gnu	skl_fua_dbg	normal	8	2,540555556
		skl_fua_prod	normal	96	70,5328125
	intel	skl_fua_prod	normal	71	20,77469907
	intelmpi	skl_fua_prod	normal	71	20,77469907
	openmpi	skl_fua_dbg	normal	14	2,802535014
		skl_fua_prod	normal	156	114,164655
	python	bdw_all_serial	normal	63	46,825
		skl_fua_dbg	normal	30	15,21934057
		skl_fua_prod	normal	3313	870,3044574
			skl_qos_fuabprod	51	5,230935546

Batch jobs Dec 2020