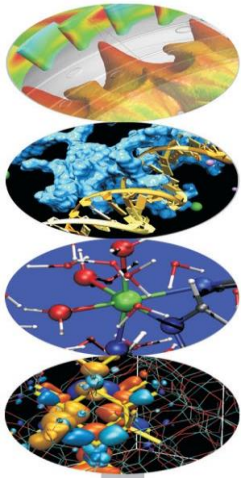
CINECA SCAI
SuperComputing Applications and Innovation

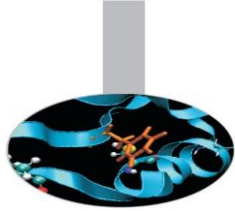


62nd Ticket Meeting

HPC User Support @ CINECA
March, 14th 2022

CINECA

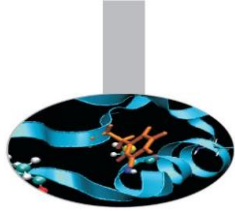
Content



- Status of the clusters - main events affecting production [Feb 12 – Mar 10]
- Examination of active tickets on HPC-US-SECOND queue
  - escalated to Intel support
  - escalated to NVIDIA support
  - other tickets
- Ticket statistics on queue [February 10 - March 9]
  - HPC-US-FIRST
  - HPC-US-SECOND

Status of the clusters [Feb 12 – Mar 10]

Main events affecting production

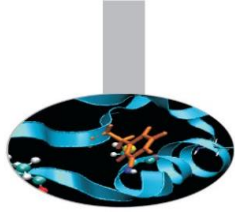


NO HPC-NEWS affecting EUROFusion production during the period

Tickets escalated to NVIDIA support

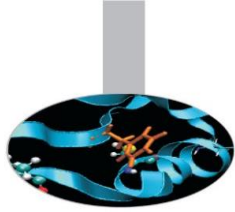
Ticket	Subject	Requestors	Created	Host	Supp. Level	Comments
19978	OpenACC compiler problem with function intermediates	nilsm@ipp.mpg.de serhiy.mochalskyy@ipp.mpg.de	2021-08-24 17:14:02	M100	2nd NVIDIA	The user provided a test code that is compiled using hpc-sdk/2021--binary module: “The compiler generates an intermediate, called get_arr1 , to store the result of the multiplication in line 26. This intermediate is copied to the device, as seen in the compiler output. Unfortunately, this intermediate needs to be private, as each thread needs its own copy. It is impossible to achieve that, as its name is not known, and it doesn't exist during compile time. Array b has the correct result as the result of the function call is saved in the variable c , so no intermediate is necessary. This problem emerges for all function calls to a device function that returns an array.” ***The issue was escalated to nvidia compiler engineers (a race condition is hypotized for the implicitly privatized fixed size local array). Three suggested workarounds.***
20303	OpenACC compiler problem, unexpected implicit wait	nilsm@ipp.mpg.de serhiy.mochalskyy@ipp.mpg.de	2021-09-09 15:58:01	m100	2nd	A test case created by the user generates an implicit wait that impedes an intended asinchronicity. This seems related to an unwanted uploading and downloading of data that is not necessary, probably caused by an intermediate copy of a struct variable.This issue is still under investigation. We will also report it to nvidia if necessary as soon as preliminary checks will be completed.

Other active tickets on HPC-US-SECOND



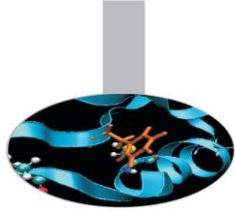
Ticket	Subject	Requestors	Created	Host	Supp. Level	Comments
23189	problema mamoria M100	giovanni.digiannatale@epfl.ch	2022-01-07 10:50:06	M100	2nd	The user is observing out of memory errors when running an ORB5 simulation, he is asking for 32 nodes for the run.The case he is running foresees 1600M particles, 32 nodes is on the edge. Ticket has been escalated to CINECA 2nd level support, that reproduced the issue and concluded that the restart files have too many informations and this causes the out of memory issue, therefore it is code-related and not system-related.
23515	Pointer issues at runtime	fwidmer@rzg.mpg.de	2022-01-18 16:54:01	M100	2nd	The user encounters errors of invalid pointers at the first simulation step of Orb5. The error happens when running simulations with collisions, while simulations without them work fine. We asked further details to the user and we suggested him to contact the EF high level support, since the issue seems code related.
24201	Issue with submission script	fwidmer@rzg.mpg.de	2022-02-11 11:04:01	SKL	2nd	After maintenance, simple commands such as “mv” prompt “command not found” when added in a function defined inside the .bashrc, if such function is then called from a batch job. The problem seems to be that the user has redefined the variable PATH inside his jobscript. Ticket likely to be closed soon.

Other active tickets on HPC-US-SECOND



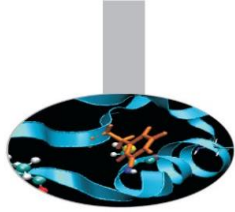
Ticket	Subject	Requestors	Created	Host	Supp. Level	Comments
24227	Diagnosing the job 9982527 for memory over limit problem	francis.albertdevasagayam@aalto.fi	2022-02-14 17:42:02	SKL	2nd	The user asks for a check in a job that he thinks stopped writing because of memory issues. Our analysis suggests that it is not actually the case. We asked the user for a check on his usage of temporary filesystem and I/O functions/routines in his code and we are waiting for a feedback. A broken OPA link (now fixed) may be involved.
24400	Weird problems with simulation jobs	patrik.ollus@aalto.fi	2022-02-21 14:30:06	SKL	2nd	The user laments two issues when running his software ASCOT. The first is that the last MPI rank completes its execution much slower than the other: this is likely an issue with load balancing and has to be discussed with the software developers. The second is an unexpected crash for some jobs, that we are relate to a broken OPA link (now fixed).
24535	Marconi job 10003007 not producing output	seppo.sipila@aalto.fi	2022-02-24 12:46:01	SKL	2nd	The user has a job that stops producing output when it's close to the end, with many processes still unfinished. We are looking for the cause (the code seems to be ASCOT, the same of the previous ticket).
24579	HDf5 module for HPC-SDK 2022 spectrum MPI	huw.leggate@dcu.ie	2022-02-25 16:44:02	SKL	2nd	The user asks for HDF5 compiled with hpc-sdk 2022. The module of version 1.12.1 has been created, but the ticket stays open for consulence about how to use the library.

Other resolved tickets on HPC-US-SECOND



Ticket	Subject	Requestors	Created	Host	Supp. Level	Comments
3932	Pointers to module arrays not working with SIMD	serhiy.mochalskyy@ipp.mpg.de	2019-09-18 17:24:02	SKL	2nd	Intel OneAPI 2022.1 has been installed to Marconi, and solved the bug for which a ticket to Intel was opened. This leaves us with no pending requests for Intel at the moment.
18851	Problem with the nvidia compiler and -lnvc on m100	nilsm@ipp.mpg.de serhiy.mochalskyy@ipp.mpg.de	2021-06-23 11:00:02	M100	2nd NVDIA	The user report a strange behaviour referring to CUDA devices detection when adding (or not) the «-lnvc» flag for the compilation of a test code available on the latest hpc-sdk compiler suite on Marconi100 cluster. We performed some investigations that show that with and without the flag -lnvc the same libraries are linked, the only difference is in the order of the linkage. Nvidia support confirms that the “error” is from the user side, and suggests to avoid -lnvc in linking phase.
19982	OpenACC compiler problem with writing back from the GPU	nilsm@ipp.mpg.de serhiy.mochalskyy@ipp.mpg.de	2021-08-24 17:44:02	M100	2nd NVIDIA	The user provided a test code that is compiled using hpc-sdk/2021--binary module; it do not generate expected results related to a copyout data clause. This problem seems related to the syntax used in the copyout data clause. To complete the analysis the issue has been reported to the nvidia support to ask for further clarifications. Due to initial users' request, nvidia implemented a non-OpenACC standard (see the workaround initially suggested to solve the problem). The most recent versions of the hpc-sdk toolkits restored the compliance to the standard, and have been installed on M100.

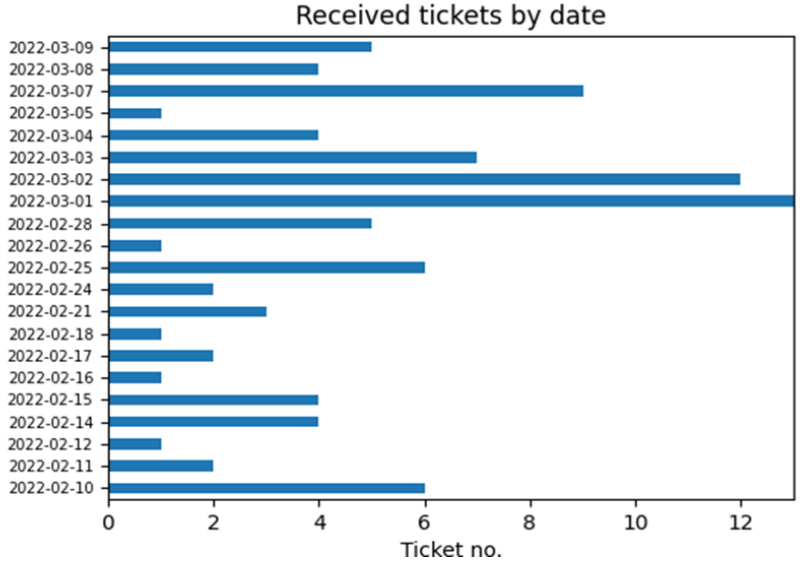
Other resolved tickets on HPC-US-SECOND

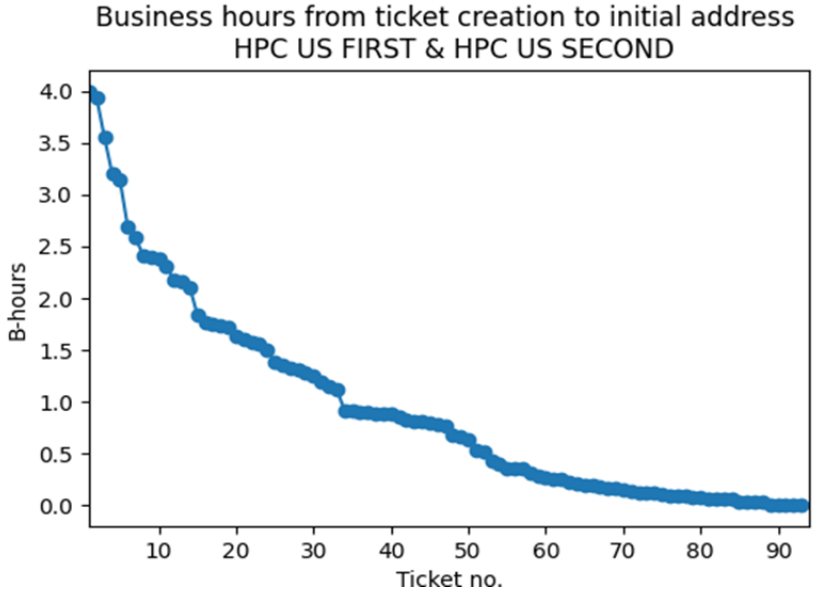


Ticket	Subject	Requestors	Created	Host	Supp. Level	Comments
21940	gcc/10 on marconi?	nicola.varini@epfl.ch	2021-11-10 18:04:01	SKL	2nd	The user has requested the installation on Marconi cluster of netcdf-fortran and hdf5 libraries, that need to be compiled with gcc/10 and mpi. The libraries have been installed and we are waiting for a feedback from the user.
23627	QOSMaxCpuPerUserLimit	alberto.mariani@istp.cnr.it	2022-01-21 17:42:02	SKL	2nd	The user reports a problem with his jobs not starting, caused by an error that has promptly been fixed. He then moves the topic with MPI_ABORT called by GENE. We detected the part of the code that prompts the abort, it appears that the problem is on the user's side and is about resource managing.
23682	stale file handle Marconi	cas@ipp.mpg.de	2022-01-25 09:18:01	SKL	2nd	The user reports some cases of jobs with 128 nodes that crashed due to stale file handle. The investigation reported 2 nodes with issues that have been repaired since. The user kept notifying similar issues with her jobs, often related to general OPA instabilities such as those recorded on Feb. 10th or on Mar. 1st.

Ticket Statistics Feb 10 - Mar 9

HPC-US-FIRST & HPC-US-SECOND

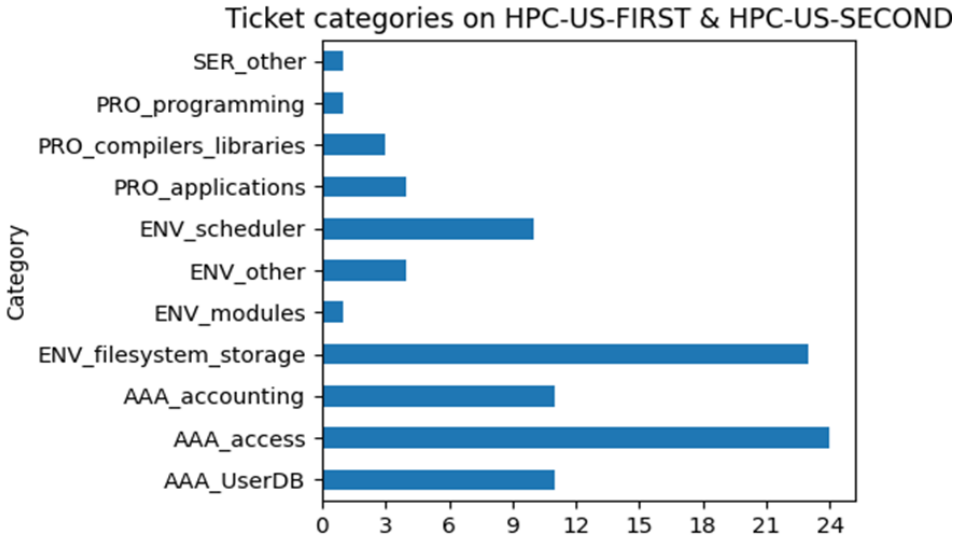


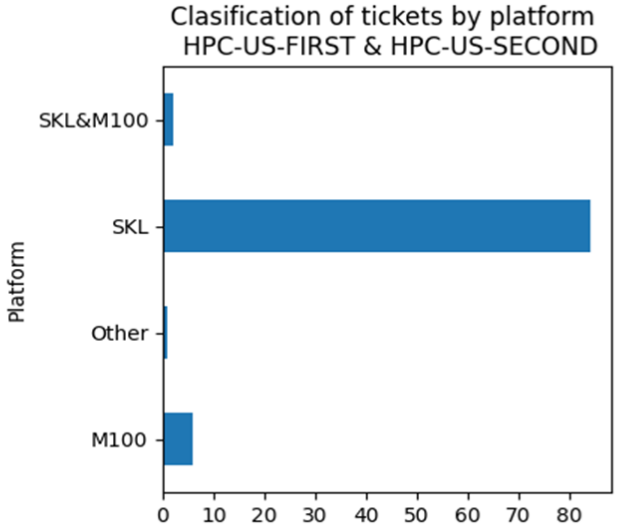


TOTAL	93 tickets
- HPC-US-FIRST	63
- escalated to HPC-US-SECOND	30

Ticket statistics Feb 10 - Mar 9

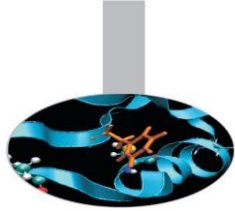
HPC-US-FIRST & HPC-US-SECOND

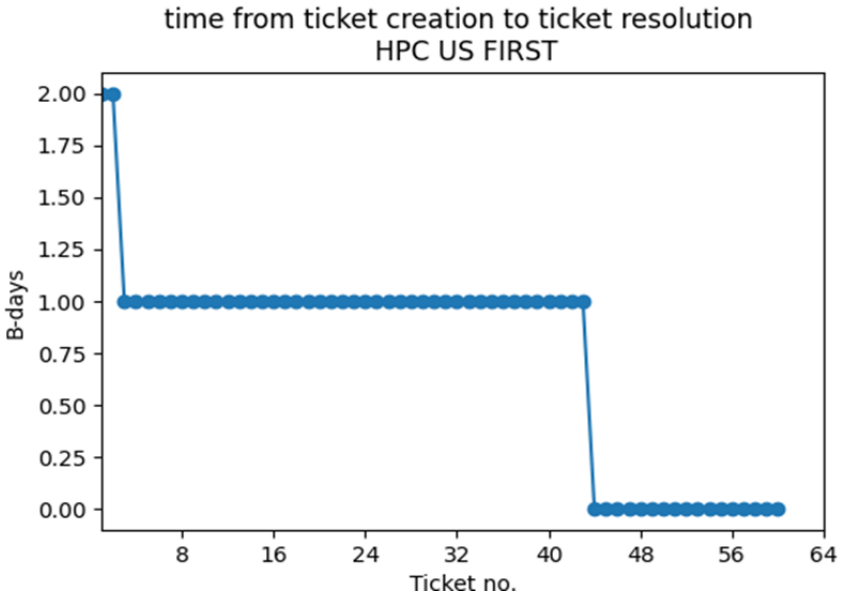


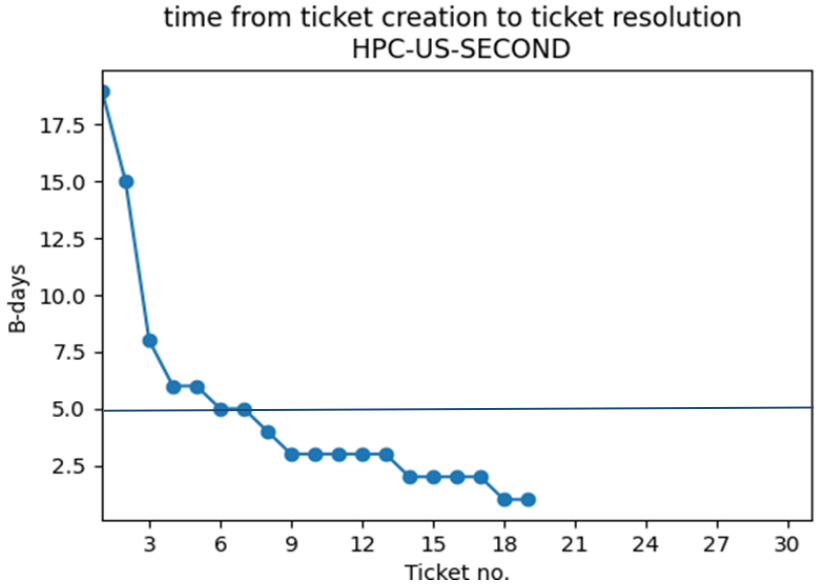


Ticket statistics Feb 10 - Mar 9

HPC-US-FIRST & HPC-US-SECOND







60 / 63 resolved tickets

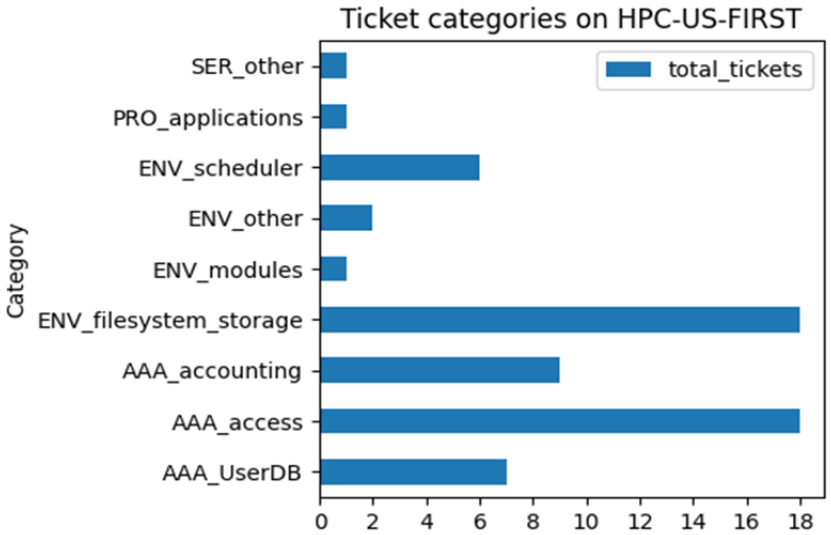
19 / 30 resolved tickets

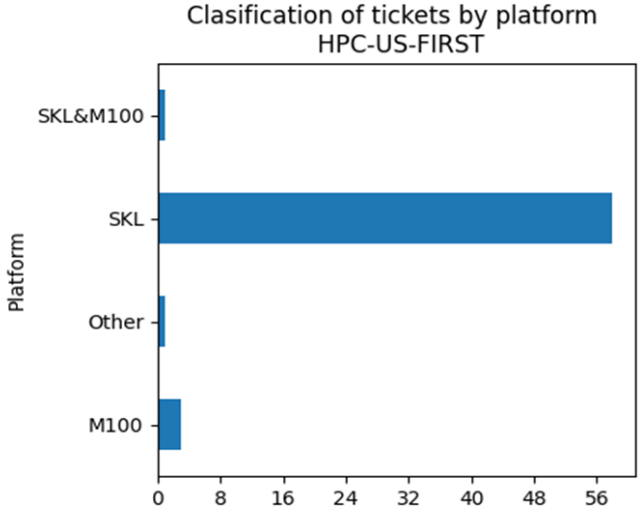
Ticket statistics Feb 10 - Mar 9

Ticket SECOND	Days	Creation time	Requestor	Subject	Notes
24167	**19**	2022-02-10 10:14:02	cristian.sommariva@epfl.ch	trasferimento dati su Marconi A3 skylake	The user has some problems with trasnferring data within the 10 minutes time limit of the login nodes. We gave him instructions about other methods for transferring data.
24181	**15**	2022-02-10 15:14:07	giovanni.digiannatale@epfl.ch	problema gestione code in M100	The user laments excessive waiting time for his jobs in Marconi100, mostly because other users in lowprio are occupying the m100_fua_prod queue. The Operation Committee is discussing some changes in the priority system of Marconi100.
24292	**8**	2022-02-16 10:06:01	ihor.holod@ipp.mpg.de	problem with RMC	The user has problems connecting to Marconi via RCM. The tool was fixed to make it compatible with the Anaconda version that the user was loading via .bashrc.
24248	**6**	2022-02-14 16:05:18	juvert-njeck.sama@univ-lorraine.fr	Issue with undefined symbol	The user has problem un undefined symbols related to ORB5. The problem was that the installation was mixed with explicit intel compilation and a python module based on gnu. Uniforming the environment and recompiling solved the problem.
24666	**6**	2022-03-01 11:32:02	alberto.mariani@istp.cnr.it	LOWPRIO	The user asks for the creation of the FUA36_LOWPRIO account for low priority submission, similar to the one defined for the 5th call. The account has been created and the user has been added to it.

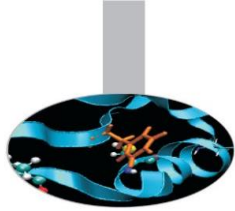
Ticket statistics Feb 10 - Mar 9

HPC-US-FIRST



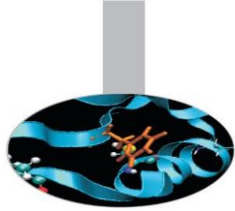


Ticket statistics Dec 12 – Jan 13



HPC-US-FIRST		By status		By platform			
		open	resolved	M100	SKL	SKL&M100	Other
Information	AAA_UserDB		3		3		
	AAA_access		1		1		
	AAA_accounting		4		4		
	ENV_filesystem_storage		1		1		
	ENV_other		1		1		
Problem	AAA_UserDB		1		1		
	AAA_access	1	6	1	6		
	AAA_accounting		3		3		
	ENV_filesystem_storage		4		4		
	ENV_other		1		1		
	ENV_scheduler		6	1	5		
	PRO_applications		1		1		

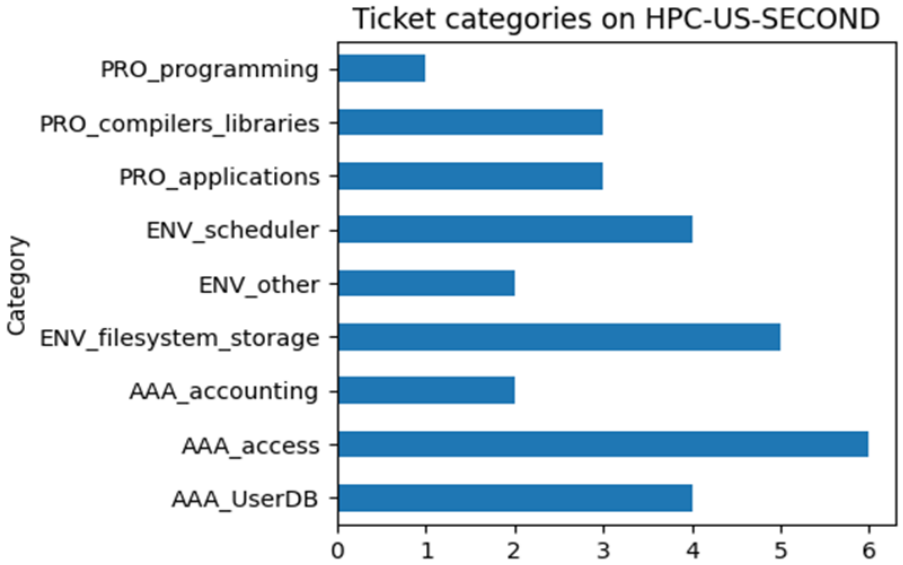
Ticket statistics Dec 12 – Jan 13

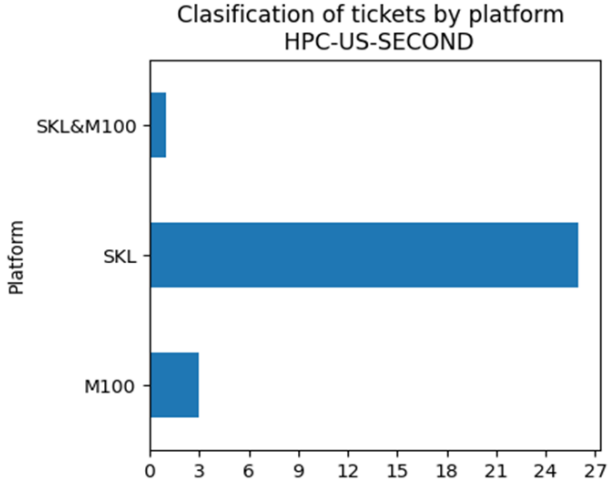


HPC-US-FIRST			By status			By platform			
			open	resolved		M100	SKL	SKL&M100	Other
Service Request	AAA_UserDB			3			2		1
	AAA_access		2	8			9	1	
	AAA_accounting			2			2		
	ENV_filesystem_storage			13			13		
	ENV_modules			1		1			
	SER_other			1			1		
total	63		3	60		3	58	1	1

Ticket statistics Feb 10 - Mar 9

HPC-US-SECOND





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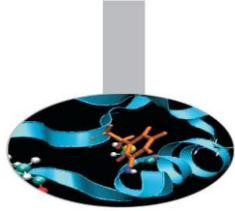

HPC-US-SECOND		By status		By platform		
		open	resolved	M100	SKL	SKL&M100
Information	AAA_UserDB		2		1	1
	AAA_access	1			1	
	ENV_filesystem_storage	1			1	
	PRO_compilers_libraries	1		1		
Problem	AAA_access		3		3	
	ENV_filesystem_storage	1	1		2	
	ENV_other		2		2	
	ENV_scheduler	2	1	1	2	
	PRO_applications	2			2	
	PRO_compilers_libraries	1			1	
	PRO_programming		1		1	
	AAA_UserDB					

Ticket statistics Dec 12 – Jan 13

HPC-US-SECOND			By status			By platform		
			open	resolved		M100	SKL	SKL&M100
Service Request	AAA_UserDB		1	1			2	
	AAA_access			2			2	
	AAA_accounting			2			2	
	ENV_filesystem_storage			2			2	
	ENV_scheduler			1			1	
	PRO_applications			1			1	
	PRO_compilers_libraries		1			1		
total	30		11	19		3	26	1