



HECToR Quarterly Report

Jul 2013 – Sep 2013

1 Introduction

This report covers the period from 1 July 2013 at 0800 to 1 October 2013 at 0800.

Section 3 summarises service availability and performance statistics for this quarter. Utilisation statistics are also available in Section 3. A summary table of the key performance metrics is included. Section 4 shows Helpdesk statistics.

The Appendices define some of the terminology and incident severity levels and list the current HECToR projects together with their overall utilisation profile to date.

This report and the additional SAFE report are available to view online at <http://www.hector.ac.uk/about-us/reports/quarterly/3Q13.php>

2 Executive Summary

- XE6 utilisation in 3Q13 was 74.2% compared to 86.8% in 2Q13. This equates to 92.7% of the optimum 80%. Further details are available in Section 3.2 of the report.
- There were three service failures in 3Q13. There was one batch scheduler failure, and one cabinet power supply failure. The third failure was as a result of a fault on a management server which caused the network to hang. The overall MTBF was 732 hours.
- Downtime due to scheduled maintenance was kept to a minimum in 3Q13, with less than 9 hours scheduled downtime in total.
- The volume of single node failures remained low.
- Low priority jobs accounted for 9.5% of the utilisation in 3Q13. Further details are available in Section 3.2.
- The helpdesk statistics were excellent. The service targets were surpassed in all areas. Further details are in Section 3.
- Work commenced in August to copy all user data from the Archive to the RDF.
- A user meeting to discuss the RDF was held in London on 30th July.

3 Quantitative Metrics

3.1 Reliability

The monthly numbers of incidents and failures (SEV 1 incidents) are shown in the table below:

	Jul	Aug	Sep
Incidents	10	16	10
Failures	2	0	1

3.1.1 Performance Statistics

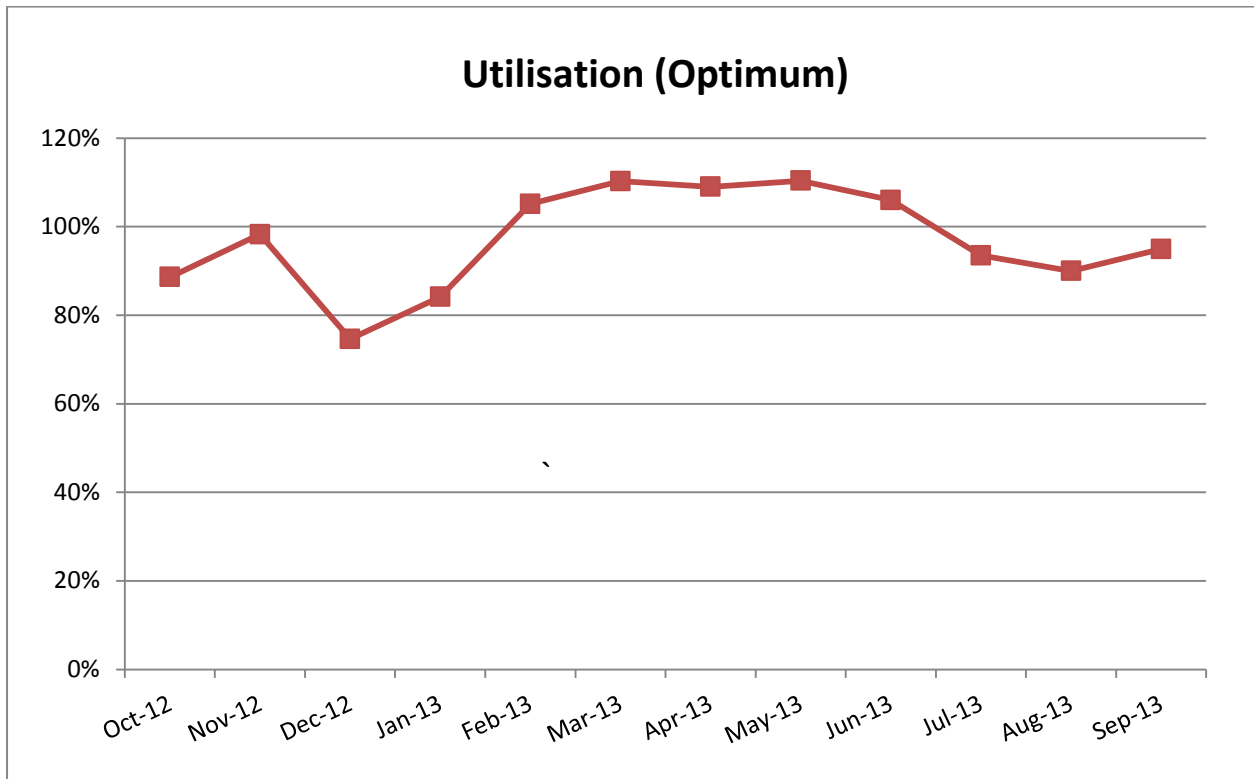
$MTBF = (732)/(\text{number of failures in a month})$

$\text{Quarterly MTBF} = (3 \times 732)/(\text{number of failures in a quarter})$

Attribution	Metric	Jul	Aug	Sep	Quarterly
Technology	Failures	2	0	1	3
	MTBF	366	∞	732	732
Service Provision	Failures	0	0	0	0
	MTBF	∞	∞	∞	∞
External/Other	Failures	0	0	0	0
	MTBF	∞	∞	∞	∞
Overall	Failures	2	0	1	3
	MTBF	366	∞	732	732

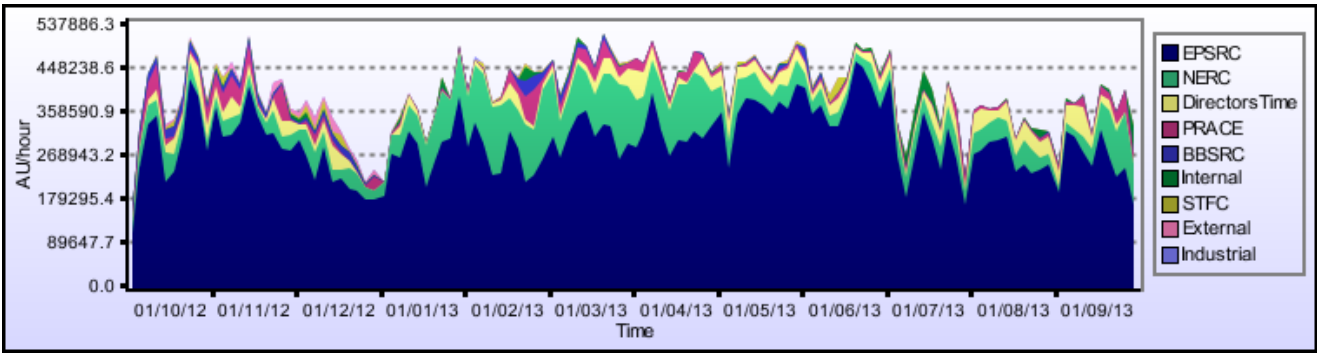
3.2 HECToR Utilisation

3.2.1 XE6 Utilisation



The XE6 utilisation quarterly average in 3Q13 was 92.8% of optimum, compared to 108.5% in 2Q13.

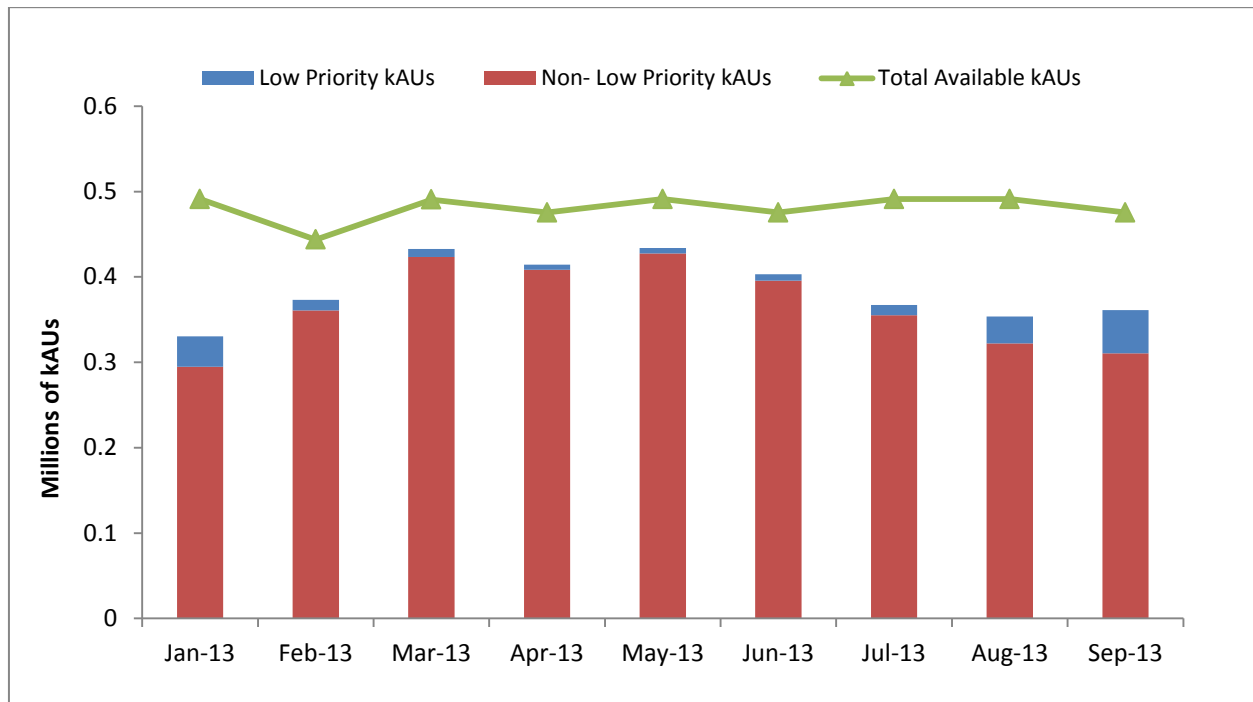
3.2.2 Capability Usage



Raw AUs used by Funding Body of jobs using more than 511 CPUs

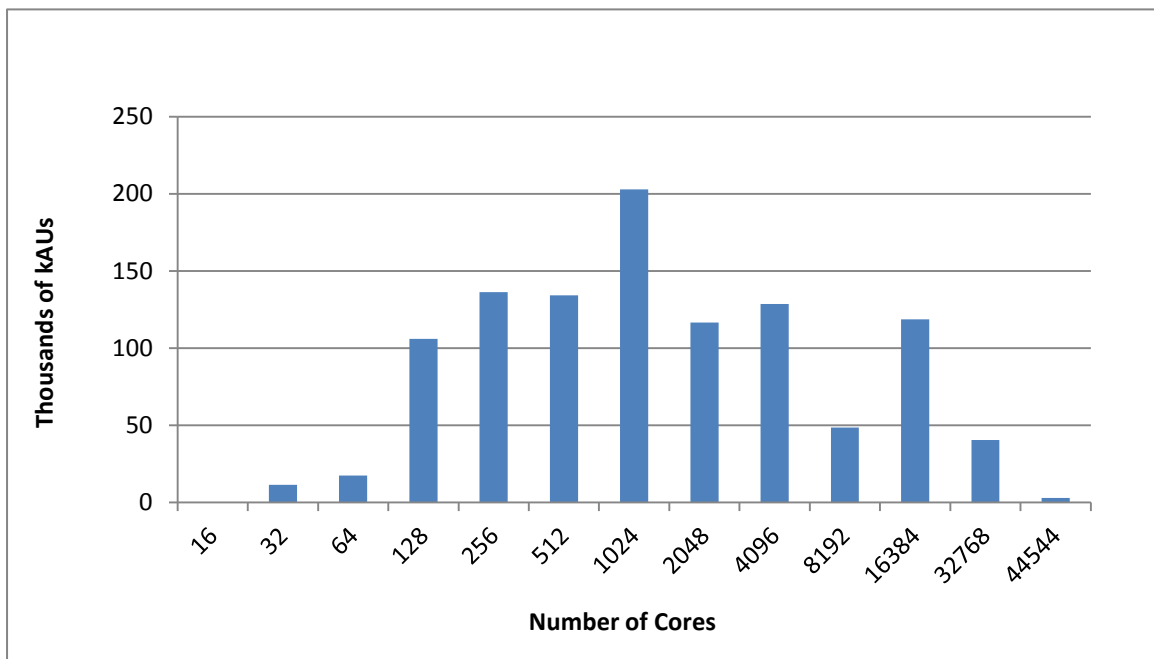
3.2.3 Low Priority Access

In 3Q13, low priority access accounted for 9.5% the overall utilisation.

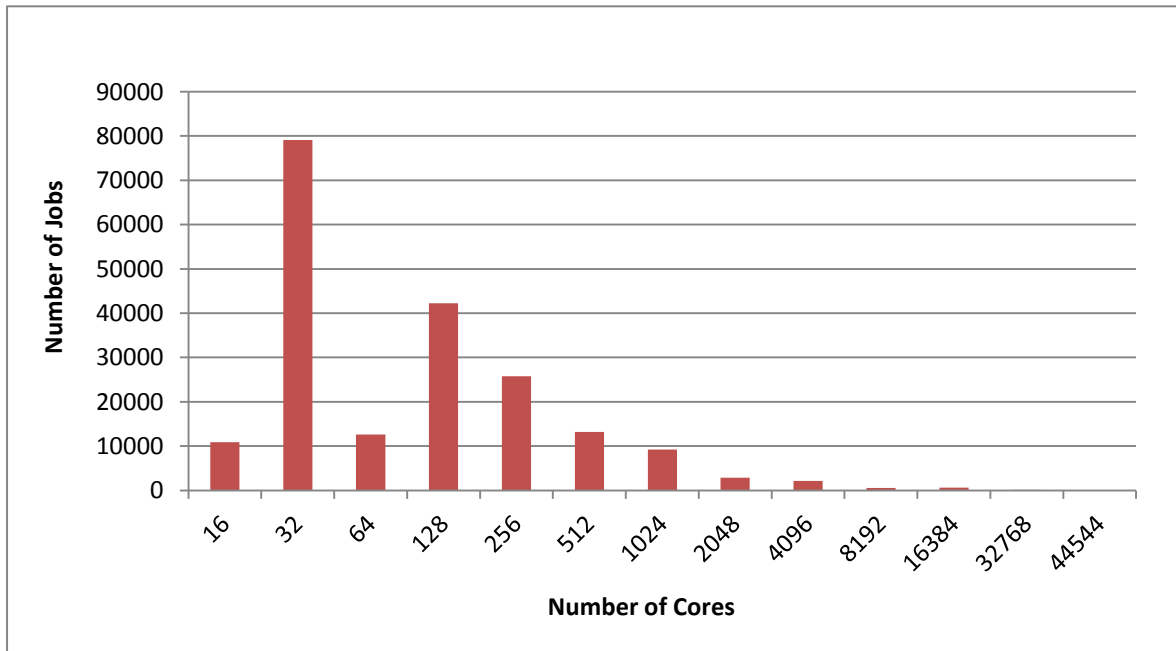


As designed, at the times when the utilisation was slightly lower, the Low Priority mechanism was enabled.

3.2.4 Utilisation by Core Count



3.2.5 Number of Jobs by Core Count



3.2.6 Utilisation by Consortium

Project	kAUs	Raw kAUs	Number of Jobs	Utilisation
y01	0	0	4	0.00%
y02	2	4	448	0.00%
y03	253	289	847	0.02%
y07	3	5	266	0.00%
z01	325	557	2,305	0.04%
z02	0	0	4	0.00%
z03	6683	16889	1,303	1.16%
z06	1	2	29	0.00%
z12	17	19	22	0.00%
Internal Total	7284	17765	5,228	1.22%
c01	1258	2192	1,389	0.15%
e01	43499	162748	5,221	11.16%
e05	158073	286501	32,672	19.65%
e10	5589	9571	2,409	0.66%
e71	2900	4965	348	0.34%
e72	0	0	2	0.00%
e76	928	1589	53	0.11%
e82	3	5	122	0.00%
e89	55822	97430	27,530	6.68%
e104	518	887	188	0.06%
e107	0	0	14	0.00%
e108	859	1470	142	0.10%
e110	20367	34912	4,378	2.39%
e122	10639	20889	1,948	1.43%
e125	4049	6931	267	0.48%
e126	69	118	11	0.01%
e141	653	1117	220	0.08%
e145	74	126	94	0.01%
e155	2022	3462	205	0.24%
e158	28	48	10	0.00%
e159	91	156	440	0.01%
e160	1653	2829	171	0.19%
e174	435	745	695	0.05%
e175	547	1664	518	0.11%
e179	3259	5579	210	0.38%
e182	83	141	7	0.01%
e184	1852	3170	214	0.22%
e185	48	81	15	0.01%
e191	99	169	21	0.01%
e202	3400	5820	224	0.40%
e203	19	33	12	0.00%
e204	475	814	407	0.06%
e207	2462	5269	15	0.36%
e229	5447	9324	325	0.64%
e231	0	0	5	0.00%
e240	0	0	1	0.00%
e248	41	70	58	0.00%
e254	1066	1825	37	0.13%
e259	0	0	1	0.00%
e260	186	318	72	0.02%
e261	146	255	122	0.02%

e262	0	0	2	0.00%
e263	106	181	1	0.01%
e266	16228	27854	937	1.91%
e269	782	1474	5	0.10%
e270	5456	17369	17	1.19%
e271	244	817	8	0.06%
e272	1647	2820	257	0.19%
e274	278	476	86	0.03%
e275	2	3	30	0.00%
e277	144	451	194	0.03%
e279	139	239	99	0.02%
e280	11520	19722	1,952	1.35%
e281	176	301	28	0.02%
e282	3	5	8	0.00%
e283	249	426	26	0.03%
e285	911	1560	53	0.11%
e287	280	480	58	0.03%
e289	0	0	1	0.00%
e290	123	211	283	0.01%
e291	0	0	1	0.00%
e296	4	7	52	0.00%
EPSRC Total	366946	747615	84,891	51.28%
n01	11326	19389	40,894	1.33%
n02	43203	74022	32,136	5.08%
n03	50229	86709	17,677	5.95%
n04	21410	36956	7,920	2.54%
u07	0	0	2	0.00%
NERC Total	126168	217076	98,629	14.89%
b09	28	49	99	0.00%
b12	0	0	2	0.00%
b14	1196	2047	186	0.14%
b15	52	88	33	0.01%
b16	106	181	2	0.01%
u04	0	0	1	0.00%
BBSRC Total	1382	2365	323	0.16%
b10	26	53	391	0.00%
d11	425	814	162	0.06%
d15	232	399	235	0.03%
d21	0	0	2	0.00%
d25	13	23	4	0.00%
d26	81	93	184	0.01%
d29	541	1466	197	0.10%
d37	20	34	434	0.00%
d40	0	0	1	0.00%
d41	19481	33349	1,666	2.29%
d42	0	0	1	0.00%
d43	16733	28760	754	1.97%
d45	1238	2430	3,141	0.17%
d49	0	1	3	0.00%
d51	178	304	107	0.02%
d52	23	40	121	0.00%
d53	0	0	17	0.00%
d54	0	0	34	0.00%
DirectorsTime Total	38989	67766	7,454	4.65%

pr1u0002	0	0	5	0.00%
pr1u0807	2756	4741	303	0.33%
pr1u0902	2532	4335	97	0.30%
pr1u0903	8	13	2	0.00%
pr1u0904	448	767	16	0.05%
pr1u0905	136	235	299	0.02%
pr1u0907	1359	2326	29	0.16%
pr1u1004	965.2	1,652.40	115	0.11%
pr1u1008	2,959.20	5,065.90	43	0.35%
pr1u1010	1.4	2.3	8	0.00%
pr1u1011	437.6	750	1,722	0.05%
pr1u1012	4,700.60	8,625.70	104	0.59%
PRACE Total	16,302.40	28,512.90	2,743	1.96%
i01	130.9	224.1	108	0.02%
i04	133.4	228.4	68	0.02%
i07	222.3	380.6	46	0.03%
i09	0.8	1.4	9	0.00%
Industrial Total	487.5	834.6	231	0.06%
Total	557,558.90	1,081,933.80	199,499	74.22%

3.3 Helpdesk

A total of 1066 queries with a specified service metric, and 265 queries with no metric were completed in this period.

Helpdesk Targets

Metric	Pass	Total	Fraction	Target
All queries finished in 1 day	1101	1121	98.4%	97.0%
Admin queries finished in 1 day	1063	1079	98.4%	97.0%
Queries assigned in 30 min	1235	1241	99.8%	97.0%
Technical assessments in 10 days	10	10	95.8%	97.0%

Queries by Service Metric

Service Metric	Queries	Percentage
Automatic	516	48.40%
Admin	342	32.10%
In-depth	131	12.30%
Technical	53	5.00%
Technical assessment	24	2.25%

Queries by Category

Query Category	Queries	Percentage
New User	140	13.1%
New Password	107	10.0%
Set group quotas	80	7.5%
Disk, tapes, resources	70	6.6%
3rd Party Software	63	5.9%
User behaviour	59	5.5%
Access to HECToR	58	5.4%
Batch system and queues	56	5.3%

None	53	5.0%
Set user quotas	47	4.4%
Add to group	43	4.0%
Other	40	3.8%
Compilers and system software	32	3.0%
User programs	31	2.9%
New Group	31	2.9%
Make Reservation	31	2.9%
Node Failure	25	2.3%
Login, passwords and ssh	23	2.2%
SAFE	13	1.2%
Update account	12	1.1%
Remove account	12	1.1%
Join Project	8	0.8%
Static website	7	0.7%
Courses	6	0.6%
Archive	5	0.5%
gpu	3	0.3%
Network	3	0.3%
Performance and scaling	2	0.2%
Delete from project	2	0.2%
Create certificate	2	0.2%
Porting	1	0.1%
Delete from group	1	0.1%

Queries by Handler Category

Handlers	Automatic	Admin	In-depth	Technical	Technical Assessment	TOTAL	%age
OSG	513	29	3	2		547	51.31%
USL	3	302	41	40		386	36.21%
CSE		1	71		24	96	9.01%
Cray		10	16	11		37	3.47%

3.3.1 Quality Tokens

Project	Positive Tokens	Comments
e10/d37	* * * *	<i>Very stable & I approve of the reservation request feature</i>

3.4 Performance Metrics

Metric	TSL(%)	FSL(%)	Jul-13	Aug-13	Sep-13	3Q13
Technology Reliability (%)	85.0%	98.5%	88.6%	100.0%	99.9%	96.2%
Technology MTBF (hours)	100	126.4	366	∞	732	1098
Technology Throughput, hours/year	7000	8367	7724	8737	8780	8414
Capability jobs completion rate	70.0%	90.0%	93.0%	98.6%	100.0%	97.2%
Non in-depth queries resolved within 1 day (%)	85.0%	97.0%	97.8%	98.7%	98.4%	98.3%
Number of SP FTEs	7.3	8.0	9.2	8.8	8.8	8.9
SP Serviceability (%)	80.0%	99.0%	100.0%	100.0%	100.0%	100.0%

Colour coding:

Exceeds FSL	
Between TSL and FSL	
Below TSL	

Appendix A: Terminology

TSL	:	Threshold Service Level
FSL	:	Full Service Level
SDT	:	Scheduled Down Time
UDT	:	Unscheduled Down Time
WCT	:	Wall Clock Time
MTBF	:	Mean Time Between Failures = 732/Number of Failures
SP	:	Service Provision

SP Serviceability% = $100 * (WCT - SDT - UDT(SP)) / (WCT - SDT)$

Technology Reliability % = $100 * (1 - (UDT(Technology) / (WCT - SDT)))$

Incident Severity Levels

SEV 1 — anything that comprises a FAILURE as defined in the contract with EPSRC.

SEV 2 — NON-FATAL incidents that typically cause immediate termination of a user application, but not the entire user service.

The service may be so degraded (or liable to collapse completely) that a controlled, but unplanned (and often very short-notice) shutdown is required or unplanned downtime subsequent to the next planned reload is necessary.

This category includes unrecovered disc errors where damage to file systems may occur if the service was allowed to continue in operation; incidents when although the service can continue in operation in a degraded state until the next reload, downtime at less than 24 hours notice is required to fix or investigate the problem; and incidents whereby the throughput of user work is affected (typically by the unrecovered disabling of a portion of the system) even though no subsequent unplanned downtime results.

SEV 3 — NON-FATAL incidents that typically cause immediate termination of a user application, but the service is able to continue in operation until the next planned reload or re-configuration.

SEV 4 — NON-FATAL recoverable incidents that typically include the loss of a storage device, or a peripheral component, but the service is able to continue in operation largely unaffected, and typically the component may be replaced without any future loss of service.

Appendix B: Projects on HECToR

Project	Title	Funding Body	Class	Principle Investigator	kAU Allocated	kAU Used	kAU Left
e01	UK Turbulence Consortium	EPSRC	Class1a	Sandberg, Prof Richard D	2227108	273334	1953774
c01	Support of EPSRC/STFC SLA	EPSRC	Class1a	Wander, Dr Adrian	113303	62749	50554
e05	Materials Chemistry HPC Consortium	EPSRC	Class1a	Catlow, Prof C Richard A	6319804	1464980	4854823
e10	GENIUS	EPSRC	Class1a	Coveney, Prof Peter	256048	39282	216766
e68	Hydrogenation Reactions at Metal Surfaces	EPSRC	Class1a	Michaelides, Prof. Angelos	50000	49900	99
e71	Simulating the control of calcite crystallisation	EPSRC	Class1a	Harding, Prof John	130403	71295	59108
e85	Study of Interacting Turbulent Flames	EPSRC	Class1a	Swaminathan, Dr N	8089	6286	1803
e89	Support for UK Car-Parrinello Consortium	EPSRC	Class1a	Probert, Dr Matt	2403145	398267	2004877
e104	Fluid-Mechanical Models applied to Heart Failure	EPSRC	Class1a	Smiths, Dr Nicolas	30400	14599	15801
e125	Full configuration interaction quantum monte carlo	EPSRC	Class1a	Alavi, Dr Ali	168325	46741	121584
e126	Clean Coal Combustion: Burning Issues of Syngas Burning	EPSRC	Class1a	Jiang, Prof Xi	25584	24791	793
e141	A numerical study of turbulent manoeuvring-body wakes	EPSRC	Class1a	Coleman, Dr Gary N	16350	8821	7529
e145	UK-SHEC Consortium	EPSRC	Class1a	Mays, Dr T.J.	1192	896	296
e149	Fractal-generated turbulence and mixing: flow physics and	EPSRC	Class1a	Vassilicos, Prof Christos	68083	56419	11663
e155	Modelling Cholesterol Deposits	EPSRC	Class1a	Quigley, Dr David	10000	4103	5897
e158	Novel Asynchronous Algorithms	EPSRC	Class1a	Higham, Prof Nicholas J	2500	1136	1364
e159	Multi-layered Abstractions for PDEs	EPSRC	Class1a	Kelly, Prof Paul	3816	242	3574
e160	Sustainable Software Generation Tools	EPSRC	Class1a	Kelly, Prof Paul	40208	20726	19482
e161	Properties and Dynamics of Atomic Bose-Einstein Condensates	EPSRC	Class1a	White, Dr A	69896	0	69896

e165	Multi-scale simulation of intense laser plasma interactions	EPSRC	Class1a	Arber,Dr Tony	4872	0	4872
e174	3D instabilities in two-layer flows	EPSRC	Class1a	Valluri,Dr Prashant	35495	5299	30196
e175	Fine-Scale Turbulence	EPSRC	Class1a	Sandberg,Prof Richard D	50000	15548	34452
e179	Non-conservative dynamics	EPSRC	Class1a	Dundas,Dr Daniel	87000	7713	79287
e182	Advanced Modelling of Two-Phase Reacting Flow	EPSRC	Class1a	Richardson,Dr Edward S	8150	618	7532
e184	UK-RAMP	EPSRC	Class1a	Taylor,Prof Ken	130500	4986	125514
e185	Chemistry of ceramic materials	EPSRC	Class1a	Harding,Prof John	340000	9069	330931
e186	Step Change in Combustion Simulation	EPSRC	Class1a	Luo,Prof Kai	70000	69785	215
e187	IAGP: Integrated Assessment of Geoengineering Proposals	EPSRC	Class1a	Fosters,Prof Piers	6030	1078	4952
e191	CFD Analysis of Flight Dynamics	EPSRC	Class1a	Badcock,Prof Kenneth	40500	4512	35988
e202	Quantum Monte Carlo simulations	EPSRC	Class1a	Foulkes,Prof Matthew	38345	38320	25
e203	BeatBox - Realistic Cardiac Simulations	EPSRC	Class1a	Biktashev,Prof Vadim N.	5500	4356	1144
e204	Rare Events via Parallel Forward Flux Sampling	EPSRC	Class1a	Allen,Dr Rosalind	5000	4495	506
e206	FLAME Agent-Based Simulation Framework	EPSRC	Class1a	Greenough,Prof Christopher	410	1	410
e207	Developing DL_POLY Molecular Dynamics Simulation code	EPSRC	Class1a	Trachenko,Dr Kostya	25858	26756	-898
e220	Study of interacting turbulent flames 2	EPSRC	Class1a	Swaminathan,Dr N	26122	17022	9100
e226	Novel Vibrational Spectroscopic Techniques	EPSRC	Class1a	Burnett,Dr Andrew D	1032	0	1032
e228	Development of the potential of doped metal-oxide nanotubes	EPSRC	Class1a	Teobaldi,Dr Gilberto	20218	2054	18164
e229	DTC in Complex Systems Simulations	EPSRC	Class1a	Essex,Prof Jonathan W	50000	25139	24861
e241	Potential Energy Surfaces for Bio-molecular Simulations	EPSRC	Class1a	Smith,Dr Lorna	500	1	499
e260	Microscopic gas diffusion-reaction model	EPSRC	Class1a	Blumberger,Dr Jochen	4940	3902	1038
e266	Thermal and Reactive Flow Simulation on High-End Computers	EPSRC	Class1a	Luo,Prof Kai	226800	22525	204276
e268	Modelling of marine renewable energy farms	EPSRC	Class1a	Elsaesser,Dr Bjoern	10000	0	10000

e272	TOUCAN: Towards an Understanding of Catalysis on Nano-alloys	EPSRC	Class1a	Johnston,Prof Roy L.	187000	14274	172726
e280	UK High-End Computing Consortium for Bio-molecular Simulation	EPSRC	Class1a	Mulholland,Prof. Adrian	1075000	11940	1063060
e281	Plasma Physics Consortium	EPSRC	Class1a	Arber,Dr Tony	500000	410	499590
e282	SI2-CHE: Chemical Software	EPSRC	Class1a	Smith,Dr Lorna	20472	8	20464
e283	UK Consortium on Mesoscopic Engineering Sciences	EPSRC	Class1a	Luo,Prof Kai	403000	249	402751
e290	ExTASY	EPSRC	Class1a	Laughton,Dr Charles	3524	125	3399
e291	CP2K-UK	EPSRC	Class1a	Bethune,Mr Iain A	16520	11	16509
e82	ONETEP: linear-scaling method on High Performance Computers	EPSRC	Class1b	Haynes,Dr Peter	4853	4812	42
e284	First Principles Modelling of Materials	EPSRC	Class1b	Briddon,Dr Patrick R	20360	0	20360
e286	Investigation of wing stall delay effect	EPSRC	Class1b	Revell,Dr Alistair	7068	0	7068
e287	Seeking Pathways to DFT studies of charge carriers	EPSRC	Class1b	Castleton,Dr Christopher	1495	280	1215
e288	Image Similarity Metrics with Saliency Analysis	EPSRC	Class1b	Connor,Prof Richard	1390	0	1390
e292	Rogue Wave Occurrence In Optical Communication Systems	EPSRC	Class1b	Roemer,Prof. Rudolf A	6090	0	6090
e293	Bio-photonic Structures	EPSRC	Class1b	Panoiu,Dr Nicolae	6446	0	6446
e294	Protein pumping in cbb3-type oxidase	EPSRC	Class1b	Pisliakov,Dr Andrei	6500	0	6500
e295	Investigating 2D monolayer solids	EPSRC	Class1b	Hunt,Dr Michael R C	11175	0	11175
e296	DRAGRED	EPSRC	Class1b	Ricco,Dr Pierre	5200	10	5190
e274	Characterization of the dynamics of alpha-synuclein	EPSRC	Class2a	Vendruscolo,Prof Michele	5739	860	4879
e277	Cellular automata simulation of microstructure evolution	EPSRC	Class2a	Shterenlikht,Dr Anton	300	161	139
e289	Potential energy surface of the NO-N2 complex	EPSRC	Class2a	Wheatley,Dr Richard	300	0	300
e261	Expressive and scalable finite element simulation	EPSRC	Class2b	Wells,Dr Garth	800	205	595
j01	JST	EPSRC	Class1a	Turner,Dr Andrew R	71991	22904	49087

NERC Projects							
n01	Global Ocean Modelling Consortium	NERC	Class1a	Coward,Dr Andrew C	355632	255462	100170
n02	NCAS (National Centre for Atmospheric Science)	NERC	Class1a	Lister,Dr Grenville	884151	673098	211053
n03	Computational Mineral Physics Consortium	NERC	Class1a	Brodholt,Prof John P	765405	631904	133501
n04	Shelf Seas Consortium	NERC	Class1a	Proctor,Dr Roger	254511	175702	78808
BBSRC Projects							
b09	Circadian Clock	BBSRC	Class1a	Millar,Prof Andrew A	2000	1595	404
b100	Widening the BBSRC HPC User Base	BBSRC	Class1a	Ball,Dr Michael	10000	641	9359
b12	Flu Analysis on HECToR	BBSRC	Class1a	Jackson,Mr Adrian	50	0	50
b13	Linear Scaling DFT for Biochemistry Applications	BBSRC	Class1a	Bowler,Dr David	5587	106	5482
b14	Understanding supercoiling-dependent DNA recognition	BBSRC	Class1a	Maxwell,Prof Anthony	42600	32820	9779
b16	First steps: velocity change in humans	BBSRC	Class1a	Sellers,Dr Bill	18350	2825	15284
Directors Time							
b10	SPRINTing with HECToR	DT	Service	Sloan,Mr Terry	4595	553	4042
d11	NAIS	DT	Service	Jackson,Mr Adrian	10000	6535	3465
d15	HPC-GAP	DT	Service	Weiland,Dr Michele	502	361	141
d25	Code Scaling	DT	Service	Rice,Dr Ken	51500	19033	32467
d26	Guest Training Accounts	DT	Service	Sim,Miss Elizabeth	1800	1313	487
d29	Nu-FuSE	DT	Service	Jackson,Mr Adrian	1500	1355	145
d35	PhD	DT	Service	Bull,Dr Mark	10	0	10
d36	Genome	DT	Service	Gray,Dr Alan	3460	0	3460
d37	CRESTA	DT	Service	Smith,Dr Lorna	21000	13264	7737

d40	Computational Chemistry at St Andrews	DT	Service	Fruchtl,Dr Herbert	2000	474	1526
d41	NPL Project	DT	Service	Zachariae,Dr Ulrich	90000	82375	7625
d43	ECDF	DT	Service	Weir,Mr Tony	40000	35391	4609
d44	Crucible	DT	Service	Bethune,Mr Iain A	1000	0	1000
d49	Leiden	DT	Service	Portegies Zwart,Dr. Simon	200	1	199
d50	Roslin Institute	DT	Service	Sloan,Mr Terry	400	0	400
d51	Superconducting Materials	DT	Service	Hermann,Dr Andreas	400	270	130
d53	ATLAS	DT	Service	Washbrook,Dr Andrew	400	0	400
d54	MSc in HPC 2013-2014	DT	Service	Henty,Dr David	1000	8	992
d55	High Pressure Materials	DT	Service	Martinez-Canales,Dr Miguel	100	0	100
d56	Planetary Interiors	DT	Service	Hermann,Dr Andreas	20000	0	20000
i08	OGSL	DT	Service	Maru,Dr Wes	100	0	100
i10	FORTISSIMO	DT	Service	Dewar,Dr Mike	1000	0	1000
PRACE Projects							
pr1u0804	FULLDRUG	PRACE	DECI-8	Johnson,Dr Chris A	1	1	1
pr1u0806	NELC	PRACE	DECI-8	Johnson,Dr Chris A	4699	4699	4699
pr1u0807	PARAMETER	PRACE	DECI-8	Johnson,Dr Chris A	3740	3740	3740
pr1u0809	VIPforVPH	PRACE	DECI-8	Johnson,Dr Chris A	4184	4184	4184
pr1u0810	DrugEffluxMechanism	PRACE	DECI-8	Johnson,Dr Chris A	4965	4965	4965
pr1u0902	ESM4OED	PRACE	DECI-9	Johnson,Dr Chris A	10272	9554	718
pr1u0903	ICREIMUTANTS	PRACE	DECI-9	Johnson,Dr Chris A	3766	800	2966
pr1u0904	MoMoGal	PRACE	DECI-9	Johnson,Dr Chris A	7008	6515	493
pr1u0905	MPI-FETI	PRACE	DECI-9	Johnson,Dr Chris A	9096	542	8554
pr1u0906	FORSQUALL	PRACE	DECI-9	Johnson,Dr Chris A	3156	1	3155
pr1u1004	HIGHERFLY	PRACE	DECI-10	Johnson,Dr Chris A	17120	984	16136
pr1u1008	HIV1-GSL	PRACE	DECI-10	Johnson,Dr Chris A	23968	5082	18886
pr1u1009	INPHARMA	PRACE	DECI-10	Johnson,Dr Chris A	2568	95	2473
pr1u1010	DNSTF	PRACE	DECI-10	Johnson,Dr Chris A	28890	1	28889
pr1u1011	SPAITAC	PRACE	DECI-10	Johnson,Dr Chris A	19067	457	18610
pr1u1012	NANODROPS	PRACE	DECI-10	Johnson,Dr Chris A	27200	4951	22249

