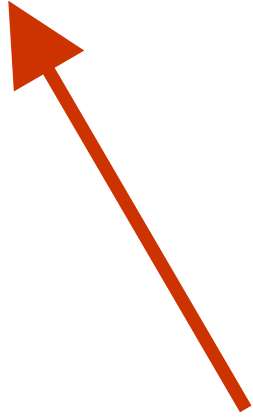


# Support Services



- Web site
- User support information
- Administration service
- Service information
- Conclusions
- References

HPC-UK

The logo for HPC-UK features the text 'HPC-UK' in a black, sans-serif font. Below the text are three horizontal bars of equal length, colored blue, purple, and magenta from left to right.

What is this  
logo?

# The Launch of HPC-UK

HPC-UK was launched  
on 20<sup>th</sup> September  
2005

**NEW CONSORTIUM AIMS TO  
GIVE THE UK A WORLD LEAD  
IN RESEARCH USING  
HIGH PERFORMANCE  
COMPUTING**

[www.hpc-uk.ac.uk](http://www.hpc-uk.ac.uk)

The three partners have complimentary strengths in HPC and a common purpose to ensure that the UK is internationally competitive in HPC-enabled computational science and engineering



The largest ever consortium to support UK academic research using high performance computers (HPC) is being established by the University of Edinburgh, the University of Manchester and the Council for the Central Laboratories of the Research Councils' (CCLRC) Daresbury Laboratory.



The screenshot shows the HPCx Home Page in Microsoft Internet Explorer. The browser window title is "HPCx Home Page - Microsoft Internet Explorer". The address bar shows "http://www.hpcx.ac.uk/". The page content includes the HPCx logo, a welcome message, navigation links, and several informational sections.

**HPCx**  
CAPABILITY COMPUTING

**Welcome to HPCx -  
The UK's World-Class Service for World-Class  
Research**

[Services](#) [Support](#) [Projects](#) [Research](#) [About us](#) [Sitemap](#) [Search](#)

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**Visitors:**  
[About Us](#)  
[News](#)  
[Events](#)

**Users:**  
[Existing User Login](#)  
[New Users](#)  
[User Support](#)  
[Services](#)  
[FAQ](#)

**Research:**  
[Research Activities](#)

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[Search](#)  
[Site Map](#)



The HPCx system is being used by the leading research groups in the UK in studies covering a wide-range of Computational Science and Engineering



**Next Maintenance Session**

HPCx will be down from 12 noon until 12 midnight, 28th January for system maintenance.

Loadleveler queues will be drained in an orderly fashion beforehand.

---

**The HPCx platform is number 9 in the Top 500 Supercomputer list**



The Top 500 Supercomputer list certificate shows HPCx ranked 9th. The certificate includes the following information:

Rank	System	Nodes	Processor	Memory
9	HPCx	10,000	AMD	100,000 GB

- **User support information**
  - helpdesk information, user mailings, bulletin board, documentation, training course details, FAQs,..
- **Administration service**
  - project administration via the admin secure web service
- **Service information**
  - hardware + software details, current machine status, service policies
- **Research information**
  - details of research being carried out on the HPCx system
- **General information about HPCx**
  - news, events, newsletter, HPCx staff

- HPCx aims to support users via a number of mechanisms:
- Helpdesk
- Functional teams
- Training courses
- Bulletin board

- Provides access to HPCx support team
  - answers questions on using the service
  - mechanism for providing comments and criticisms
- Queries can be submitted via:
  - email: **support@hpcx.ac.uk**
  - web submission form:  
<http://www.hpcx.ac.uk/support/helpdesk/query.html>
  - by phone: 0131 650 5029
  - by fax: 0131 650 6710
  - by post

- HelpDesk software banks and tracks queries
- Queries
  - (email and web based queries) receive an automatic response within minutes
    - query has arrived at the helpdesk, query number assigned
  - helpdesk operator assigns query to an “expert”
    - expert receives copy of the query
    - expert may contact you directly to discuss the query
    - expert sends you an answer
  - helpdesk operator finishes the query
    - you receive an e-mail telling you this has happened
    - records of queries are retained indefinitely

- The SLA states that queries must be answered within a certain time:
  - 97% of Admin queries within 2 days
  - 75% of all queries within 1 day
  - 97% of all queries within 3 days
- Some queries may be marked as 'in-depth' - no time limit. For example:
  - queries requiring more than 1 person-day of work
  - queries requiring more input from the user
  - queries requiring referral to a 3<sup>rd</sup> party

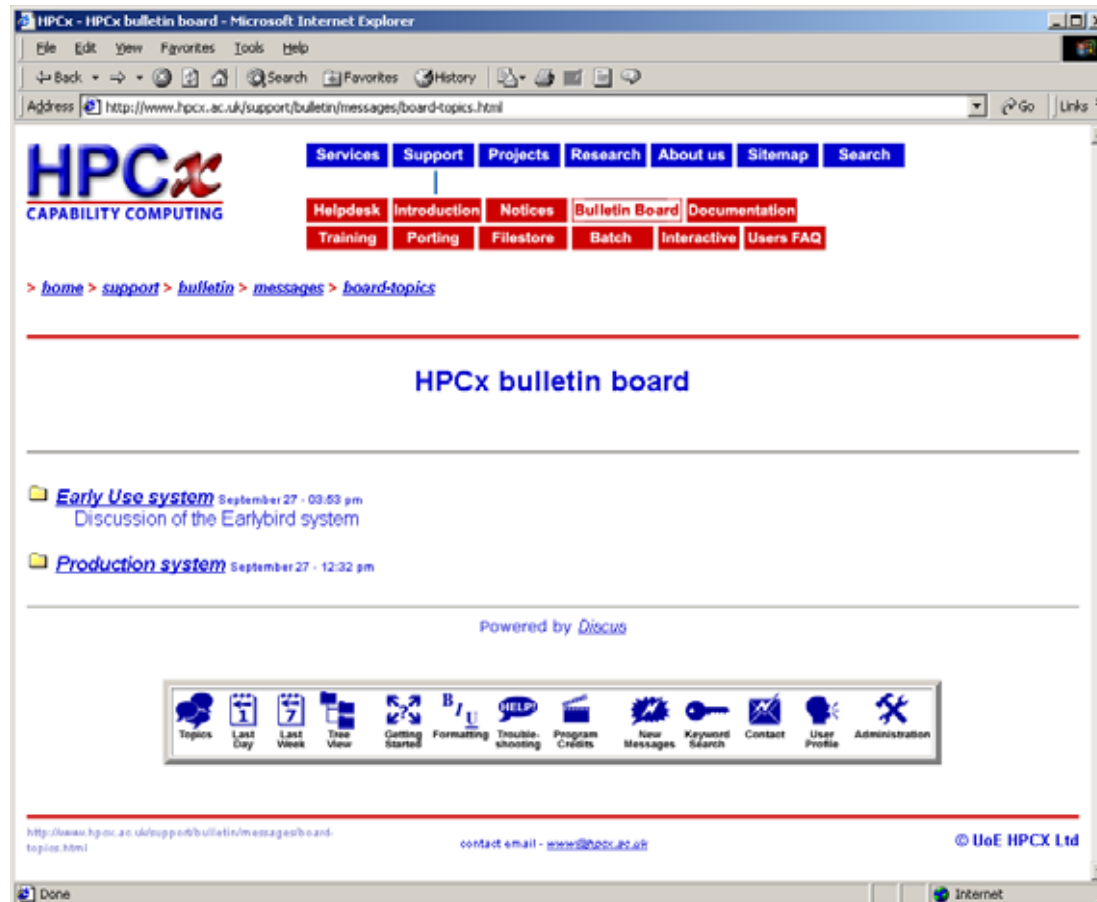
- Dual centre teams to address key targets
- Terascaling applications
  - collaborating with users to develop capability applications to exploit HPCx facilities
  - developing highly scalable numerical algorithms
- Software engineering
  - ensuring portable, high-quality code development
  - interfacing with emerging computational Grid

- **New applications outreach**
  - spreading the use of HPC to new applications and other Research Councils, eg, Life Sciences
  - supported by IBM Life Sciences, Accelrys, ...
- **Applications support**
  - ensuring service meets the users' needs
  - co-ordinating support activities, eg, helpdesk and training, and other teams
- **Operations and systems**
  - delivering a flexible capability computing service
  - ensuring smooth transitions between phases

- Functional teams and queries primarily involve the following staff
  - Alan Simpson (project director)
  - Richard Blake, Stephen Booth, Mike Brown, Martyn Guest, David Henty (team leaders)
  - Mike Ashworth, Mark Bull, Ian Bush, John Fisher, Joachim Hein, Martin Plummer, Gavin Pringle, Fiona Reid, Lorna Smith, Andrew Sunderland, Alan Gray, Huub vanDam, Kenton D'Mellow, Paul Sherwood, Jon Hill,...
- Experienced in HPC and e-Science. . .
  - . . . and in a broad range of application fields
- See:
  - <http://www.hpcx.ac.uk/about/staff/>

- Majority of existing courses available to HPCx users
  - MPI , OpenMP, languages, algorithms, ...
- New training courses
  - Using the HPCx service
  - Performance Optimisation
    - compiler switches, cache management, loop structure, ...
  - Terascaling
    - optimal use of MPI , LAPI , shared-memory tricks, ..
- Application and discipline specific workshops
- See:
  - <http://www.hpcx.ac.uk/support/training/>

- Allows exchange of information between HPCx and our users and PIs



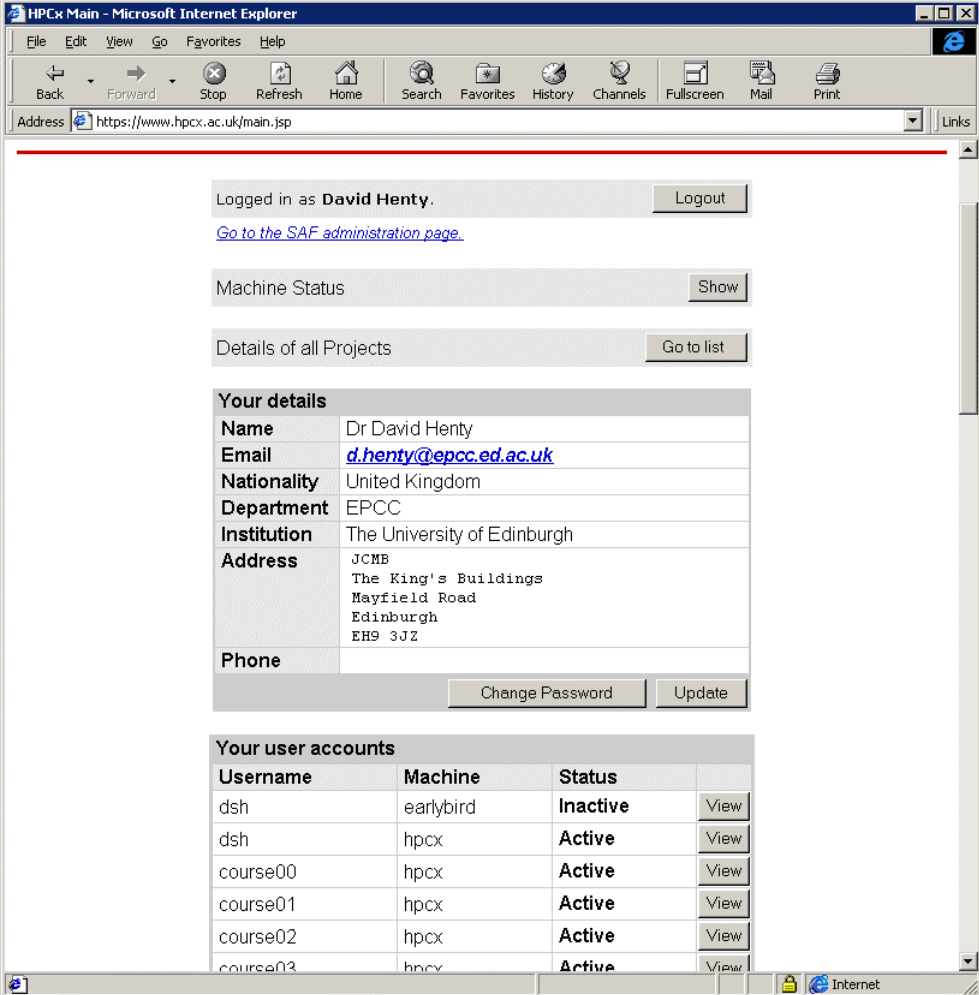
- **A secure web-based system that allows**
  - New users to access the service
    - Creating a new account on the administration service
      - identified by unique email address
    - Requesting a user account on a service machine
      - join a project with a new login name
    - Monitoring resource usage
  - PI /Project Managers to manage their resources
    - New-user authorisation, PM pro/demotion
    - Sharing out CPU time and disc space
    - Monitoring and producing reports on resource usage
- **Secure server's address**
  - <https://www.hpcx.ac.uk/>
  - For information see:
    - <http://www.hpcx.ac.uk/projects/> or
    - <http://www.hpcx.ac.uk/projects/FAQ/>

- User opens Admin Service account
  - requests an account on a service machine
  - requires project name & password
- Admin Service
  - emails admin service password to user
  - emails project manager/PI for confirmation

The screenshot shows a web browser window titled "HPCx Account Signup - Microsoft Internet Explorer". The address bar shows "https://www.hpcx.ac.uk/signup.jsp". The form contains the following fields and sections:

- Nationality:** A dropdown menu with "United Kingdom" selected.
- Institution:** A text input field.
- Department:** A text input field.
- Address:** A large text area for input.
- Phone Number:** A text input field with "(optional)" next to it.
- Privacy Policy:** A paragraph stating "All information supplied is held and processed in accordance with the HPCx Personal Data and Privacy Policy. You can find full details [here](#)."
- Project:**
  - Project Code:** A text input field.
  - Project Password:** A text input field.
  - A note: "Your project PI or manager should have told you these."
- Account Details:**
  - Machine Name:** A dropdown menu with "hpcx (HPCx Phase 1 - 2.4 AUs/CPUhr)" selected.
  - Username:** A text input field.
  - A note: "Contact your PI if you are unsure about which machine to use."
  - A note: "The username you receive depends on which names are available on the system - you may not get the one you request. Additionally, valid usernames must have between 3 and 8 alphanumeric characters."
- Buttons:** "Clear" and "Submit" buttons at the bottom right.

- The PI /Project Manager
  - logs on to the Admin Service
  - confirms the creation of the user account
- When confirmed
  - Admin Service emails System support staff
  - they create an account



Logged in as **David Henty**.

[Go to the SAF administration page.](#)

Machine Status

Details of all Projects

**Your details**

<b>Name</b>	Dr David Henty
<b>Email</b>	<a href="mailto:d.henty@epcc.ed.ac.uk">d.henty@epcc.ed.ac.uk</a>
<b>Nationality</b>	United Kingdom
<b>Department</b>	EPCC
<b>Institution</b>	The University of Edinburgh
<b>Address</b>	JCMB The King's Buildings Mayfield Road Edinburgh EH9 3JZ
<b>Phone</b>	

**Your user accounts**

Username	Machine	Status	
dsh	earlybird	Inactive	<input type="button" value="View"/>
dsh	hpcx	Active	<input type="button" value="View"/>
course00	hpcx	Active	<input type="button" value="View"/>
course01	hpcx	Active	<input type="button" value="View"/>
course02	hpcx	Active	<input type="button" value="View"/>
course03	hpcx	Active	<input type="button" value="View"/>

- After creating the account
  - system support staff tells the Admin Server that the account has been created & what the password is
- The Admin server emails user
  - informing them that the account is ready
- User can then use the Admin server to look up the password

The screenshot shows a web browser window titled "HPCx Personal Details - Microsoft Internet Explorer". The address bar contains a long URL. The page header includes the HPCx logo and navigation links: Services, Support, Projects, Research, About us, Sitemap, Search, New Users, User Admin, PI Admin, Reports, RAS, and Admin FAQ. The breadcrumb trail is > home > projects > admin. A link to "<< Back to the Main Page" is visible. The main content area is titled "User Account Details" and contains the following information:

<b>Username</b>	course00
<b>Machine</b>	hpcx
<b>Status</b>	Active
<b>Creation Date</b>	Fri Jan 17 16:31:21 GMT+00:00 2003
<b>Projects</b>	HPCx Training (z004)
<b>Password</b>	To view your password for this user account, please enter your HPCx web password and click on <b>View</b> .

Below the table is a text input field and a "View" button. Another "<< Back to the Main Page" link is located below the table. The footer of the page includes the URL "https://www.hpcx.ac.uk/", contact email "www@hpcx.ac.uk", and the copyright notice "© UoE HPCx Ltd".

- Confirming new users
- Creating sub-projects, to split resources between different sets of users
- Nominating (sub-) project managers
  - Who can do everything that PIs can
- Storing resources in a “reserve budget”
  - For use later in the funding period
- Adding/changing resources for different (sub-) projects
  - Both CPU-time and disk space

- See:
  - <http://www.hpcx.ac.uk/services/>
- Service policies
  - capability incentives
  - charging model
  - also
    - contingency and revision plan, data backup, personal data and privacy policy, information security policy
- HPCx and the Grid
- Packages
- Also hardware and software details, current machine status, ...

- **EPSRC's objectives for the procurement were to**
  - aim “to deliver the optimum service resulting in world-leading science”
  - address “the problems involved in scaling existing codes to the capability levels required”
- **Capability Computing**
  - jobs which use a significant fraction of the resource
  - eg, at least 512 CPUs
- **The challenges we face are to**
  - support change from capacity to capability
  - develop more scalable codes

- Codes reviewed by science support staff
  - award a 'seal of approval' at one of three different levels
  - discount provided for each seal of approval level

Level	No of Processors	Discount
Bronze	256	5%
Silver	512	15%
Gold	1024	30%

- Satisfactory scaling an important criterion
- Any disagreements will be passed to the EPSRC
- See:
  - <http://www.hpcx.ac.uk/services/policies/capability.html>

- Charges will be calculated on the amount of CPU time used
- Charges will be in terms of a standard “Allocation Unit” of CPU time
  - equivalent to 1 gigaflop processor running for 1 hour
  - constant throughout the service
  - Currently 1 AU is roughly 0.21 CPU hours
- See:  
[http://www.hpcx.ac.uk/services/policies/charging\\_model.html](http://www.hpcx.ac.uk/services/policies/charging_model.html)

- Software engineering team
  - help users to Grid-enable codes
  - strong links with e-Science centres
- HPCx on the Grid
  - Globus 2.4.3 is running on HPCx

- HPCx supports a number of software packages, available pre-compiled
    - AMBER
    - CFX
    - DL\_POLY
    - NAMD
    - GAMESS-UK
    - VASP
    - SIESTA
    - LAMMPS
    - and many more...
  - Information on codes for specific application areas at
    - <http://www.hpcx.ac.uk/research/>
  - Licenses required for some codes
  - Contact the Helpdesk for further information
-

- HPCx aims to provide support for users via a number of mechanisms:
  - web site
  - helpdesk
  - functional teams
  - training and documentation
  - bulletin boards
  - administration service
- Have summarised:
  - service level policies
  - Grid status
  - application packages

- This course has:
- introduced the HPCx architecture
- described the steps involved in compilation
- explained how to submit batch jobs
- highlighted the different tools and libraries available on the system
- summarised the different user support mechanisms available

- See the HPCx web site:  
<http://www.hpcx.ac.uk>