

---

## **Allocation Procedures for the Central Computing Systems/ Billing of network services**

---

### **1 Description of the procedures**

The allocation procedure sets a maximum for resources that may be used. The only persons excluded from this are external users who use the resources within the framework of a contract with Forschungszentrum Jülich and pay for it. In such cases, consumption within the contractually agreed limits is generally not subject to quota allocation.

Applications for external users are available on request to Mrs Marga Wenzel.  
(mailto:m.wenzel@fz-juelich.de;phone:02461/613770)

The computing time quota to user/usergroups will be assigned in core-h. Quotas can be granted to individual users as well as to groups of users. In order to ensure that all users have access to the computer services, user quotas or group quotas are divided evenly across the months of use. This monthly quota (MQ) and any time left over from the previous month (PQ) is calculated as the amount in the quota account (CQ) for the current month:

$CQ = PQ + MQ \text{ (of the current month)}$
---

Any hours not used from the quota of the month preceding the previous month is forfeited. During a changeover to a new allocation period, any remaining quota is forfeited independent of the runtime of the project. No hours may be taken over into the new allocation period.

The quota used is debited daily from the current quota account (CQ). This account may be overdrawn to the amount of the monthly quota of the following month (up to -MQ) without affecting the processing priority of the job. Only when the MQ of the following month has also been used up all subsequent jobs will be assigned lowest priority for the rest of that month.

Using the monthly quota (MQ) of the following month is only possible if the user's allowance for computing resources includes the following month. In the last month of an allocation period, access to the monthly quota (MQ) of the following month is not possible.

An overdrawn account in the preceding months is carried over into the current quota (CQ) as a negative quota.

Since 1 August 2011, project accounts on JUGENE and JUROPA will not anymore show a cpu-quota balance below -101/month. This offers projects that have used the systems in times of low demand and have thereby strongly overdrawn their quota, the possibility to reach - in reasonable time - a state in which

they can again submit jobs with regular priority. The users will be notified about their waived quota with the monthly notification.<sup>1</sup>

Another allocation procedure is realized by means of fixed quotas in the case of JUGENE for annual quotas less than 3 million core-h; in the case of JUROPA, for less than 100000 core-h. The quota used is debited to the one-time approved quota account. Once the account has been exhausted, all associated users are blocked.

The head of a project will be informed monthly by email about the current quota status. The members of a project receive an information if the project quota is used up or is again balanced. In case of a monthly quota the email informs about the total and the monthly allocation. Here the described three month window has to be taken into account. In the current month the members of the project have an amount of -100% up to +200% available. The percentage value is based on the allocation of one month. Only in case the usage falls below the -100% the status of the project will change. In case of the fixed quota mode the email informs about the total quota and the overall consumption. Here the percentage is based on the total quota.

## **2 Quota on the supercomputers JUROPA, HPC-FF, JUGENE and JUQUEEN**

Usage is calculated according to the length of wall clock time for which the allocated nodes are occupied, where partly used nodes always count as full nodes. Each JUROPA and HPC-FF node is composed of 8 cores. Each JUGENE node is composed of 4 cores, each JUQUEEN node is composed of 16 cores.

### **2.1 Overdrawn quota accounts**

If the current quota account (CQ) is overdrawn by more than one month's quota ( $CQ < -MQ$ ), then all subsequent batch jobs for all users from the same group or organizational unit will be put on hold until CPU capacity is free. The maximum time that can be requested to process jobs is reduced to 6 hours. Jobs that require more computing time will be refused.

The time used by the jobs will still be debited to the quota account as described above.

## **3 Billing formula for IP addresses**

For the use and delivery of central network services and IT security services provided by JSC (JuNet, WLAN, Internet, VPN, eduroam, FZJ-CERT, firewall, Anti-virus software, consulting, ...) the costs incurred are charged by ILV (Internal accounting for services).

In order to avoid more expensive individual invoices for services used and to allow the provision of innovative services that are initially rarely used, the total costs for the IT infrastructure operated by JSC will be divided between the number of IP addresses provided for the OU. The reasoning behind this simple model is that OUs with multiple IP addresses make more use of the infrastructure than those with fewer IP addresses.

The use of services in contingent units (KE) is calculated using the following formula:

---

<sup>1</sup>this does not apply to hpcff

$$\text{Usage (KE)} = fc * AP * NIP$$

Resource parameters are:

NIP: max. number IP addresses for an Organisational Units in an allocation period (AP)

Factors:

fc: 10 (KE/month)  
AP: 1 (month)

Quota allocation does not occur in this case.