Standard Operating Procedures

For

NSM HPC Systems

(Resource Allocation)

Version **1.0**

Date: **13/11/2021**

http://www.cdac.in

C-DAC Innovation Park, Panchawati,
Pashan, Pune – 411 008
INDIA

Changelog

S.No.	Version	Date	Changes
1.	0.1	21st October, 2021	• Initial draft for comments
2.	0.2	24th October, 2021	• Moved charging policy as Annexure 1 • Added Annexure-2 for account request forms
3.	0.3	13th November, 2021	• Changes in NFSP TAS • Revision and corrections in resource allocation policies
4.	1.0	13th November, 2021	• Release

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1. Resources Allocation Policy– NSM HPC Systems at Host Institutes

1.1. NSM User Types and share

USERS' CATEGORY	RESOURCE SHARE
HOST INSTITUTION (HI) INTERNAL USERS	60%
NSM APPS	20%
EXTERNAL USERS (NEARBY INSTITUTION + MSME)	20%

1.2. Steps for Allocations:

1. Each NSM site has a Supercomputing Allocation committee for Access approval.
2. Users can approach HI/CDAC for NSM resource allocation for HI Internal /NSM Apps/external users
    a. Internal user allocation and policies will be decided by Host Institute
3. Users will receive the NSM resource access form
4. External users can approach C-DAC through nsmsupport@cdac.in for resource access.
5. External users need to submit a filled and signed access form along with a detailed project proposal with problem description (details as per Annexure-A) and justification for HPC resources. However, HI Internal and NSM Apps users will directly get NSM resources as per their approval.
6. The verification process of filled access form of external users by respective site coordinators for the authenticity of users
7. The committee including HI will evaluate the proposal based on justification for external users
8. Application recommended for approval/rejected for external users
9. Final approval of the filled form of external users by HoD, HPC-Technologies, C-DAC Pune
10. Payment criteria to be finalized and accepted by the user. Advance obtained for paid users
11. External user account creation & NSM Resource allocation

Note:

- By default, free users under external quota will get normal priority & a fixed Rs. 1 lacs compute power credit to be used for the first 6 months. User needs to request & justify the higher requirement. BY giving justification and scientific output achieved in brief till date e.g., paper publication, breakthrough, etc.
- The committee may recommend additional credits as per the merit of the proposal.
- Paid users will normally be allowed without restrictions after checking the background of the project.
- All NSM Systems will run C-Chakshu client for the purpose of getting usage statistics in real time and for the usage report generation.
- Charging policy is as per Annexure 2.

1.3. Procedure for requesting and sanctioning access:

1. Interested PIs are asked to fill an online form specific to this category.

2. If the request is to use the facility with payment of usage charges, the requested information can be basic, along with a document showing available funds. Access will be granted upon advance payment.

3. If the request is for free access, the following additional input should be requested:
   a) A declaration that no funds are available for the requested use and unavailability of computational resources.
   b) A brief proposal (1 - 1.5 pages max) of the research or other activity to be carried out with justification of supercomputer usage.
   c) Statement of PI competence/expertise and past record (.5 page)
   d) CV of the PI
   e) Statement of requested usage, with calculation of virtual funds
   f) requested at CDAC rates.

4. A HI internal + CDAC committee will consider these requests periodically (Every month suggested) and approve/deny request.

5. Approval will be made for a quantum of usage (translated to virtual money that will be put in the account of the user), for a given period, renewable every 6 months.

6. PIs from institutes that are host institutes should be considered at that institute. [This makes sense when such PIs are not automatically eligible for accounts, and usage may be charged for, according to local policy]

7. At any given time, have a map of regions and HI's to which PIs from that region will be directed. There can be more than one HI for a given region (e.g. the HI s in Bengaluru for PIs from Karnataka).

1.4. General criteria when access without usage charges is being requested.

1. Requests for access under the NSM External User quota access should meet acceptable yardsticks for quality. This can either be with regard to proposed research or social relevance broadly under the NSM mandate.

2. The proposed use should be for goals that are deemed satisfactory. In the case of research, the level of proposed research should be broadly of a level that would be seriously considered under NSM and other funding schemes (without consideration of whether it might actually get funded). For other activities, there must be a clear case that they meet broad NSM goals and will be undertaken by competent individuals.

3. Case by case (since the requests will be either HI specific or will be forwarded for consideration at a given HI) designated CDAC System co-ordinator can consider the request and forward the request to proposal evaluation committee and arrive at a Yes/No decision. The committee can also consult experts informally or otherwise in case of need.

4. Concerned CDAC system coordinator + HI coordinator can assess whether the 10% cap of global usage under this heading is satisfied at any given time, in approving sanctions.

5. Virtual billing/accounting will be employed in these cases to define and limit the extent of use.
    a) Users will be allocated computing time equivalent of Rs. 1 lacs as per the rates mentioned above.
    b) This allocation will be valid for 6 months, further allocations will depend upon research outcomes.
    c) These allocations will be on normal priority only.
    d) Users need to compulsorily submit their work/research report on half yearly basis to continue using the system.

6. Applications will be considered once every month (suggested) and access will be granted for a 6-month period at a time. At the time of request/approval, a

total expected period of use can be specified, as well as the quantum of usage sanctioned.

2. Resources Allocation Policy – NPSF

2.1. Compute Time Distribution – PARAM Siddhi-AI

Technical Affiliates Category	% Time Allocation (Estimated)
NSM projects	**40%**
Government (Academia/ R&D/ PSU, Meity & DST Funded)	**30%**
Start-ups	**20%**
Industry/ others	**10%**

2.2. Technical Affiliation Scheme (TAS) Approval

1. To use HPC infrastructure resources and system, prospective user needs to first become a Technical Affiliate of the National PARAM Supercomputing Facility. It is to be noted that none of the terms and conditions, stipulations in the TAS are optional, or can be deviated from and are to be agreed in signing by CI of the project.
2. Any change in TAS form w.r.t information gathered, terms and conditions etc. are to be proposed by Operations Head and approved by HoD HPC I&E. Proper versioning has to be maintained and source TAS form document itself should contain changelog iterating on all the changes/updates to the form. The TAS form sent out to prospective users/CIs should will not contain changelog and any other information for internal use of NPSF/C-DAC and those not relevant for prospective users/CIs.
3. For this, the prospective user/affiliate has to fill up the TAS form. The form is to be filled for every single project that they want to register for using PARAM Siddhi-AI system as well as for other HPC resources at NPSF independently.
4. Prospective users/CIs will write to support e-Mail address (npsfhelp@cdac.in) of NPSF to enquire about the availability of the supercomputing resources and request for granting access to the system.

    a) The TAS forms are sent out to interested persons on request through e-Mail, other channels after a preliminary review of requirements. After first contact, NPSF will seek more details pertaining to following aspects before moving TAS form to requestor. The evaluation of merit and

decision on further processing request through TAS solely rest of Operations Head which also includes verifying the authenticity of the requestor by various means and sources as necessary.

b) A brief on proposed work concisely stating R&D goals/outcome expected and their impact when assessed in terms of technology advancement, societal benefits, IPR generation etc. CIs can also submit proposal made to Govt./Funding agency if so.

c) HPC usage justification aligned with work being proposed in above together with funds budgeted towards the same, and tentative usage duration & compute resources

d) Brief introduction of CI asserting his/her competence and expertise in the context of proposed work.

Note :

Operations Head may request for more details and seek clarifications regarding proposed work from CI, which might help them on assessment of the request and in turn help out the requestor to build a stronger case with detailing of requirement and merit of outcomes from usage.

7. The Operations Head will record their decision on outcome of preliminary review of requirements on e-Mail communication to support staff, thereafter the support staff will revert to the requestor. In cases the request was approved by Operations Head, TAS document would be sent to requestor. It is to be noted that absence of any communication from Operations Head in this regard SHOULD NOT be treated as rejection and to that effect processing of request will cease. Under normal circumstances the preliminary review should not take more than 5 working days.

8. The receipt of e-Mail from Operations Head Upon receipt and verification of the information, NPSF TAS form will be sent to requestor via necessarily the support e-Mail ID of HPC system/facility and may contain a unique identifier (in subject and text body of e-Mail) for the request which then can also serve for the tracking of application.

9. CI needs to fill in the form and e-Mail signed and scanned copy to NPSF-Help npsfhelp@cdac.in. All further correspondence in this regard are to be directed to the said e-mail id ONLY. An acknowledgment will be sent via e-Mail to CI/requestor on receipt of form; it has to be clearly stated that the acknowledgement should not be inferred as approval/acceptance and further status updates on their request will follow. Operations Head should evolve a

template (for acknowledgement of request) for each of the HPC systems under the purview for the said purpose.

Note :
Regarding attestation by CI on TAS form with physical signatures, it is advised to introduce and accept Digital Signatures on TAS form for which PDF Archival document is suggested.

10. Upon receipt of the TAS from, an inward with docket number has to be maintained against the request identifier/tracking ID in either physical register or digitized. The Operations Head will then assign the request to one of the user support staff personnel.

11. The assigned user support staff personnel will verify the information filled by the user against the guidelines issued and filling of details pertaining mandatory requirements given in the form itself for the correctness and will highlight the gaps which will be forwarded to Operations Head, NPSF for further review and directions.

12. Depending on the outcome of TAS form verification, the form will either be sent back to requestor for necessary changes/updates required at their end, prospective user need to resend the form after the corrections are made. In the alternate track, if the information filled by the prospective user is verified to suffice all the stipulations and mandatory conditions, the TAS form with approval attested via signing of Operations Head will then be sent to Office Of (OO) HoD, HPC I&E.

13. As with NPSF, similarly Office Of HoD HPCI&E will maintain an inward and docket reference for all requests in physical registers or in digitized form. The timelines of 5 working Days under normal circumstances for arriving at decision for grant/rejection of request for HPC resources by OO HoD HPC I&E will be adhered to. With this, the total timeline for cycling TAS request within NPSF/C-DAC is set to 10 working Days (excluding the time taken by CIs to respond to queries and clarification.)

14. A committee appointed by E.D. Pune and chaired by HoD, HPC I&E will evaluate specific TAS requests and call for proposals issued with yearly, bi-yearly frequency. HoD HPC I&E will have the discretion to decide on further course of TAS approval and issue directions to the committee. The terms of reference of committee will be decided by HoD HPC I&E to establish or otherwise application scalability and associated benefits, both in terms of advancements in respective field of research and societal impact Notwithstanding above, in all cases HoD HPC I&E has authority on

approval/rejection.

15. The decision of committee (and any comments accompanying) and HoD HPC I&E is noted on the TAS form and forwarded to Operations Head. The noting may include project highlights / relevance, computing time approved and account time duration details.

16. TAS form is received by Operations Head from OO HoD HPC I&E. If the request is disapproved, the same is conveyed back to the prospective user indicating the reason for dis-approval of the request. TAS forms approved form is communicated to assigned support staff personnel for project and account setup. Irrespective of approval/rejection of TAS request, all forms are to be filed/archived in a manner retrievable and cycle tracked for posterity and audit.

17. Upon receipt of the approved form from the Senior Director and HOD, NPSF HPC- I&E C-DAC to the NPSF System Support Team, Operations Head will analyse the requirement and communicate the same to the assigned support staff personnel for account setup while adhering to the procedures and tasks stipulated in SoP document for ‘Operations & Maintenance’.

3. Annexure-1: Operational NSM HPC Systems

Managed by HPC-Tech Group

NSM System			SPOC/Operations Head		
Name	Support e-Mail	Institute	Name	e-Mail	Contact No.
PARAM Shivay	shivaysupport@iitbhu.ac.in	IIT(BHU), Varanasi	Chitranjan Singh	chitranjans@cdac.in	7722075234
PARAM Brahma	brahmasupport@iiserpune.ac.in	IISER, Pune	Ashish Ranjan	ashishr@cdac.in	9689882456
PARAM Yukti	yuktisupport@jncsar.ac.in	JNCSAR, Bangalore	Md. Sajeed	sajeedm@cdac.in	7775079385
PARAM Shakti	shaktisupport@iitkgp.ac.in	IIT Kharagpur	BSV Ramesh	bsvramesh@cdac.in	9881241416
PARAM Sanganak	sanganaksupport@cdac.in	IIT, Kanpur	BSV Ramesh	bsvramesh@cdac.in	9881241416
PARAM Utkarsh	ashishr@cdac.in	C-DAC, Bangalore	Ashish Ranjan	ashishr@cdac.in	9689882456
PARAM Seva	sevasupport@iih.ac.in	IIT, Hyderabad	Chitranjan Singh	chitranjans@cdac.in	7722075234
PARAM Smriti	smritisupport@gmail.com	NABI, Mohali	Chitranjan Singh	chitranjans@cdac.in	7722075234

Managed by NPSF

PARAM Siddhi-AI	npsfhelp@cdac.in	C-DAC, Pune	Rishi Pathak	riship@cdac.in	7720002182

4. Annexure-2: Charging Policy

4.1. PARAM Siddhi-AI (NPSF)

Registration Charges:

Standard registration charges of INR 30,000/- per year will be applicable to all projects. The maximum duration of the project will also be 1 year and subsequent renewal will require approvals as contained within this section.

GPU (NVIDIA A100) Charges: PARAM Siddhi-AI

Base rate	**₹ 175.00 GPU/ Hour**		
Technical Affiliates Category	**% Time Allocation (Estimated)**	**% Subsidy**	**Chargeable Rate (₹/ GPU/ hr)**
NSM projects	40%	100%	₹ 0.00
Government (Academia/ R&D/ PSU, Meity & DST Funded)	30%	30%	₹ 122.50
Start-ups	20%	40%	₹ 105.00
Industry/ others	10%	0%	₹ 175.00

Note : Standard A100 GPU allocation will merit subsumed allocation of 16 CPU cores. There would be no additional charges applied for CPU allocation.

Applicable standard discount & effective GPU charges

	< 3 months	3 months	6 months	9 months	12 months
Applicable standard discount	0%	5%	10%	20%	40%
Applicable standard rates (vGPU/hr):					
NSM projects	₹ 0.00	₹ 0.00	₹ 0.00	₹ 0.00	₹ 0.00
Government (Academia/ R&D/ PSU, Meity & DST Funded)	₹ 204.17	₹ 194.00	₹ 184.00	₹ 163.00	₹ 122.50
Start-ups	₹ 175.00	₹ 166.00	₹ 158.00	₹ 140.00	₹ 105.00
Industry/ others	₹ 292.00	₹ 277.00	₹ 263.00	₹ 233.00	₹ 175.00

Additional discounts can be approved by following roles over above rates :

- Facility Manager, NPSF : **1-20%**
- Head of Department, HPC-I&E : **21-30%**
- Executive Director, C-DAC, Pune **: 31-50%**
- Director General C-DAC : **>50%**

Storage charges:

Storage will be allocated in TB-Month as units and will be charged at INR 350/- for each month. Charges for storage are calculated on allocation (quota) and not on occupancy.

Internet bandwidth charges:

There are no charges for download/upload of data however bandwidth availability for data transfers will be on Fair-Share basis and data transfer speeds will be dictated by available bandwidth during the period of the transfer. There would be a capping at 5TB for a month. Subsequent to reaching **5TB** of total data transfer, all remote connections for access and data transfers will be throttled to **5Mbps** for the remainder of the month.

4.2. NSM HPC Systems at Host Institutes

Compute Time Distribution

USERS' CATEGORY	RESOURCE SHARE
HOST INSTITUTION (HI) INTERNAL USERS	**60%**
NSM FUNDED USERS (NSMAPP)	**40%**
NSM EXTERNAL USERS (NSMEXT)	

*Allocation is not fixed and based on Fair-Share of SLURM

All NSM sites are required to adhere to below policies and provide the monthly usage/virtual billing to all the users.

Charging Units:

Resource Type	Charges
Per CPU core per minute	**1.6 paisa**
Per GPU card per minute	**70 paisa**

NSM Funded Users:

NSM funded users will be given higher priority. NSM approved user who has been awarded computing fund will be using the system as per below restriction.

- 10 jobs simultaneously (RUNNING and PENDING)
- MaxWallTime of 4 days
- Users can submit jobs on Max 8 node for 4 days. After which it's inversely proportional i.e. 16 nodes for 2 days, 32 nodes for 1 day, and likewise.
- Higher priority

NSM Approved users without computing fund shall be assigned normal priority with above restrictions.

The usage charges from such users are to be collected by host-institute.

Currently NSM has approved users with following rates under this category:

Resource Type	Charges
Per CPU core per hour	**1.5 Rs.**
Per GPU card per hour	**100 Rs.**

External Users:

NSM resources are also available to neighbouring/external users from National labs and premier academic institutes. They will be assigned resource under 40%. They will be assigned normal priority. These users will be provided with monthly usage with virtual billing charges.

Limits per user:

- 10 jobs simultaneously (RUNNING and PENDING)
- MaxWallTime of 4 days
- Users can submit jobs on Max 8 node for 4 days. After which it's inversely proportional i.e. 16 nodes for 2 days, 32 nodes for 1 day, and likewise.

Commercial Users:

Commercial or any project user with funds for computation will be allowed access under 60% of Host-Institute quota as per the charging policies defined in the para 1 above. These users will also be given higher priority.

Internal Users:

Internal users of host institutes will be assigned 60% of total computing based on fair share. Internal users will be also running under normal priority. The other type of restriction like number of running jobs and number of max nodes may be decided by host institute for their users.

Host institutes may assign high priority to internal users and charge them as per the above charging policy and collect the charges.

The charges are to be collected by host-institute and need to use this fund for future operation & Maintenance of the system.

5. Annexure-3: Account Request Forms

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5.1. NSM HPC Systems – NPSF

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National PARAM Supercomputing Facility

Technical Affiliation Scheme

Version 2.0

Date: 13/11/2021

http://www.cdac.in

National PARAM Supercomputing Facility (NPSF)
Centre for Development of Advanced Computing

C-DAC Innovation Park, Panchawati,
Pashan, Pune – 411 008
INDIA

1. Introduction

The National PARAM Supercomputing Facility (NPSF) is a result of more than two and half decade effort of Research and Development (R&D) in High Performance Computing (HPC) since C-DAC's inception. The National PARAM Supercomputing Facility was setup with a mandate to offer state-of-the-art High Performance Computing systems and resources to the scientific user community of various academic and research institutes, help them with the know-how and usage of such systems and proliferate HPC awareness in the country. The initiatives at National PARAM Supercomputing Facility has contributed to the proliferation of parallel and distribute processing technologies in India which in turn has helped several researchers from various scientific and engineering disciplines to carry out their research more effectively.

While the need and usefulness of High Performance Supercomputing and AI in Business as well as Scientific & Engineering Applications is unquestioned and is growing rapidly, it is not economically viable to have many such facilities.

C-DAC has thus established “National PARAM Supercomputing Facility” to provide Supercomputing facility to various industries and other institutions that need such a facility to process their diverse applications.

2. The Technical Affiliation Scheme (TAS)

Facilities such as NPSF have to run with highest uptime and adequate technical support to provide a quality service to its users. This requires appropriate power back-up with UPS and DG sets, and spares for technical resources all the time. Also, system administration and technical consultancy support are integral part of running such a facility. Keeping in view the practice followed worldwide, a scheme, called the Technical Affiliation Scheme, is introduced with an express objective of encouraging the potential users of high performance computing resources in a cost-effective way, and provide a state-of-the-art technically congenial environment to the researchers in the NPSF.

This scheme is introduced to provide supercomputing facility to various industries as well as academic and R&D Institutions to process their diverse applications, which require supercomputing power. For a long time, it has not been economically viable for the industry and academic/R&D institutions to use High Performance Supercomputers.

This scheme is a step in the direction to address this problem by providing state-of-the-art “PARAM “systems to the users. For this, any interested user has to get enrolled as a Technical Affiliate of NPSF in order to use the computing resources of this facility. They can then use NPSF resources on terms and conditions, details of which are given in this booklet.

3. Consultancy

NPSF’s technical staff members having long experience in high performance computing are available for consultancy on working days to Technical Affiliates on terms as mentioned in this booklet.

4. Training Programs

One of the goals of NPSF is to create quality manpower in the area of HPC-AI, in the country. To meet this goal, NPSF conducts Workshops and seminars and arrange conferences on the related technologies. In addition to this, training programs are arranged for affiliates where trainings are imparted by OEMs on specific technologies offered by them. Every technical affiliate is intimated of all such events.

5. Usage Charges

Only registered users can use the NPSF resources. A registered user is referred to as an Affiliate. For this, the prospective user / affiliate have to fill up the account request form. The form is to be filled for every single project that the prospective affiliate wants to register for using NPSF resources. The charges for the usage of different resources are given below.

5.1 Registration Fees

To use the HPC resources at NPSF, every project needs to get registered for a minimum period of one quarter (3 months). The registration charges cover an account for the CI and up to 5 user accounts including that of Chief Investigator (CI)of the project. Also, the charges are applicable for the period of maximum of 1 year. That is, even if a user wishes to use the system for a few days, he/she will have to register for at least a quarter and pay the 1-year registration charges. Renewal of project after expiry, or after completion of an year, will be charged as stated above.

5.2 Compute Usage charges

The utilization for CPU Core is measured and charged on minute basis. The GPUs / Other Accelerator consumed will be charged in accelerator hours, i.e., number of hours of accelerator being used.

5.2 Storage Usage Charges

All HPC systems at NPSF are provisioned with high-bandwidth shared storage for use by users to keep their programs and data. There is a default quota allocated to each project that can be consumed. Additional requirement of storage will be charged extra on monthly basis and in the storage, units prescribed for each system. It is to be noted that as opposed to compute resources, charges for storage are calculated on allocation (quota) and not on consumption measured. There would be variations in charges for multiple different types of storages depending upon their performance parameters.

5.4 Priority Allocation and Usage

Users requiring the compute nodes in dedicated mode will be given priority over others, to allow jobs to go for execution as soon as the required resources available. However, such priority allocations and usage will attract additional charges over and above that of non-priority (regular) usage. It is to be noted that priority allocation does not guarantee job execution immediately after submission and is limited to advancing the job's priority to order it at the beginning of the queue.

5.5 Consultation Charges

Consultation of C-DAC members towards usage of NPSF and on the specific user problem will be available at no cost to the user up to initial one working day or equivalent. If an Affiliate requires consultancy of C-DAC members beyond this, separate charges will be applicable and these will be charged on per support call on case-to-case basis.

Note:

1. NPSF employs differential charging policy to the Affiliates from 1) Government R&D and academic institutions, 2) Industries/startups/MSME.

2. Charges for any special type of usage or situation not mentioned in this document will be decided on a case-to-case basis by C-DAC.

3. Charges will be communicated to prospective users based on their requirements

6. Scope of the Scheme

The scheme aims at building a close contact between an Affiliate and the NPSF. No commercial and/or proprietary rights over products, inventions, copyrights and patents arising from NPSF's work or that of its staff are conferred on the Affiliates. NPSF reserves the right to amend the Technical Affiliation Scheme fully or partially at any time. However, the Affiliates will be informed of any such changes. C-DAC also reserves the right to withdraw the scheme at any given time without giving any reasons thereof.

7. Joining the Scheme

To use PARAM Siddhi-AI system, a person needs to first become a Technical Affiliate of the National PARAM Supercomputing Facility. For this, the prospective user / affiliate have to fill up the account request form as given below. The form is to be filled for every single project that the prospective affiliate wants to register for using PARAM Siddhi-AI system. The primary prospective affiliate / user who registers as the Chief Investigator is expected to be a Faculty member / Research Scientist/ Professor at any Indian research organization/institute/university or manager in the Industry / Startup. The Chief Investigator can request for additional accounts associated with this project for e.g. for his/her Ph. D. /M. Tech. students / co-workers as well as collaborators.

Once the committee approve the request, respective accounts are created. The affiliates raise the requests to NPSF by means of e-mail to the NPSF Help Desk.

Prospective user interested in becoming an Affiliate is requested to fill the form provided at the end of this booklet and e-Mail signed and scanned copy to ***NPSF-Help*** ***npsfhelp@cdac.in***. All further correspondence in this regard are to be directed to said e-mail id only.

Technical Affiliation Scheme (TAS) Form

Instructions for filling up the form

- Please fill up all the fields with relevant information. In case if some of the fields are not applicable, please mention "N.A.".

  Note: Fields marked with * are mandatory.

- Thereafter, please take the printout of the document and sign the same manually. After signing, please send the signed (digital signatures are also accepted) copy to the address provided below using postal/courier services.

  _____

  To,
  Operations Head,
  National PARAM Supercomputing Facilty
  C-DAC, Pune

  Address:
  C-DAC Innovation Park,
  Panchavati, Pashan,
  Pune - 411 008, Maharashtra (India)

  _____

  OR

  Scanned copy of the signed form can be sent through mail to **npsfhelp@cdac.in**.

  _____

- For each Project, the TAS form has to be duly filled, signed and submitted by the Chief investigator (CI).
- Please note that the one TAS form for one project is to be filled. Chief investigator (CI) of the respective project needs to fill the TAS form for renewal of the same as per the project requirements on expiry of the project/affiliation or one year (whichever is earlier) on NPSF system.
- The signatory agrees to terms and conditions laid out by C-DAC for usage of the HPC resources.

- In case of any difficulty and for any clarifications in this regard, please mail to "npsfhelp@cdac.in.

Section 1 : Information of the CI

Salutation (Dr./Prof.)	
***Name**	
***Designation**	
***Organization Name & Address**	
***City:**	
***Pin Code**	
***State**	
Desk Telephone Number:	
***Mobile Phone Number:**	
Website	
***Type of organization (Academic /Govt. R & D / Startup / Industry / MSME / If other, please specify) :**	
***Domain (Application area) of the Organization (e.g. : Chemical industries, Compute hardware, Software, mechanical, defense etc.)**	

Section 2: Information of the Additional Accounts

*** Additional user account/s required:** [Number of users must be numeric]:	
Details of additional users: [Enter this information for every additional user separately; In case of students, kindly mention degree being pursued, start and end Month-Year for the degree program]	
***Name:**	
***Designation:**	
***Organization Name & Address (if different from that of CI)**	
***Official Email:**	
***Contact No (Mobile):**	

***Scanned copy/image of user's identity card issued by organization/institute:**
[Kindly insert mentioned front and back image below]

Section 3: Information of the Project

*Application Domain (tick, whichever is applicable):

• Artificial Intelligence	
• Data Science	
• Computer Vision	
• Natural Language Processing	
• Computer Vision	
• Data Analytics	
• Computational Biology / Bioinformatics	
• Computational Fluid Dynamics	
• Computational Physics	
• Computational Chemistry	
• Computational Mechanics	
• Materials Modelling	
• Structural Engineering	
• Atmospheric Modelling	
• Geoscientific Computational	
• Others (Please Specify)	

Project Details:

***Name of the Project**	
***Nature of the Project [R & D or other]**	
***Collaboration/s details, if any**	
***Funding agency**	
***Collaborating Institutes**	

***Brief description of project:**

***Potential benefits to C-DAC:**

Expected start date of the project on NPSF system: [MM/DD/YYYY] **NOTE:** In case of project renewal, please specify the date on which the project has initially started on NPSF system.	
***Project duration:** [in months, maximum 12] :	

Section 4 : Information of the Compute Resources and Application

Estimated computing usage requirement:

***CPU cores:**	
GPUs / Other accelerators:	
***Duration in days:**	
***Storage Requirement** (in TBs):	
Project data retaining period: [in months] (On best effort basis, after conclusion of the project/affiliation)	
Special requirements, if any:	
***Software requirements:** [In case of commercial software, suitable license has to be provided by user]:	
***Applications/Tools / Frameworks**	
Compilers:	
Libraries:	
***Nature of Application / s:** [cpu only /runs on accelerators / scalability details] **:**	
***Application readiness: [Yes/No]**	
Application tested and run on earlier platform/s: (Ex. OS- Linux, Platform- Intel/AMD, GPU/Other accelerators, Compilers, CUDA, Python, Virtual environment etc.)	
Access to the other HPC Facilities (please provide the details) :	

Section 5: Acknowledgement and Signature

I hereby state that the above information is true and correct to the best of my knowledge. I understand that false statements may result in suspension of the NPSF services for my project and me.

A) *Name & Signature of Chief Investigator :

B) *Signature and Stamp of authoritative (see below) governing the Institution/Company/Organization/Pvt. Ltd. :

- Head of the Department (H. O. D.) (In case of Govt. organizations)
- C.E.O/C.T.O./Director (In case of private organizations/Startups/Industry/MSME)

***Name:**

***Designation:**

***Date:** [DD-MM-YYYY]

*** Place:**

----------For NPSF, C-DAC use only----------

Approval by committee (if applicable):

Approved / Not Approved

Comments:

HoD, HPC I&E, C-DAC, Pune

5.2. NSM HPC Systems – Host Institute Template

(Page intentionally left blank)

The sample form attached (Users will get an online form)

<Logo of Host Institute>

<NSM Designated HPC system name> REQUEST FORM

User Details:

First Name: _____ **Last Name:** _____

Organization Name:

_____

Organization Address:

_____

Gender: _____

Department: _____

Designation: _____

(*Designation: If student, provide the details below*)

Roll No.: _____**Course**: _____**Academic Year:** _____

Official Email address: _____

Office no.: _____ **Mobile no.:** _____

(If Research, provide the details below)
Nature of the Research:

Project Details:

Project Name:

_____
___

Nature of the Project:

_____
___

Brief Description of the Project (*Maximum 1000 words*):

Project Start Date: _____ **Project Duration:** _____

Proposed work on <*NSM designated HPC system name*> & Requirement of resources:

***<NSM designated HPC system name>* HPC facility usage policies:**

1. The Resources provided to you on < *NSM designated HPC system name* > facility should not be used for any commercial purpose i.e. it is restricted for the academic use like research projects, academic projects, NSM projects, NSM approved MSME projects and scientific projects.
2. Sharing your login credentials with some third person will revoke the responsibility of <*NSM designated HPC system name*> administration committee for data theft and your account will also be disabled. The third person will also be held accountable for misusing the <*NSM designated HPC system name*> facility.
3. It is strictly recommended that you should not run jobs on login node and any such incident reported will result in cancellation of the job and any repeat action will result in closure of your account.
4. You will be responsible for informing the <*NSM designated HPC system name*> administration about your project completion, project cancellation and moving or copying data related to your project from PARAM Brahma.
5. You will be solely responsible for keeping your password strong and safe.
6. If found in any engagement or promotion of activities like hacking, reverse-engineering, violating intellectual property rights on or using the <*NSM designated HPC system name*> facility, you will be barred from having account on any Supercomputer setup under the National Supercomputing Mission.
7. The facility is built with least downtime requirement; however, it depends on various factors like Hardware reliability, Power outage, network outage, scheduled maintenance due to which the facility could be unavailable completely/partially. Notification of all scheduled / unscheduled maintenance will be made known to the users via Website, Email, broadcast message, newsgroups etc.
8. This facility will not be used for any purpose connected with Chemical or Biological or Nuclear weapons or missiles capable of delivering such Weapons.
9. Acknowledging the usage of the facility is mandatory.

   If you use supercomputers and services provided under the National Supercomputing Mission, Government of India, please let us know of any published results including Student Thesis, Conference Papers, Journal Papers and patents obtained. Communication of your achievements using resources provided by National Supercomputing Mission, will help the Mission in measuring outcomes and gauging the future requirements. This will also help in further augmentation of resources at a given site of National Supercomputing Mission.

Performa for Acknowledging the usage:

We acknowledge National Supercomputing Mission (NSM) for providing computing resources of '*<NSM designated HPC system name>*' at IISER Pune, which is implemented by C-DAC and supported by the Ministry of Electronics and Information Technology (MeitY) and Department of Science and Technology (DST), Government of India.

Also, please submit the copies of dissertations, reports, reprints and URLs in which "National Supercomputing Mission, Government of India" is acknowledged to:

HoD, HPC Technologies,
Centre for Development of Advanced Computing,
CDAC Innovation Park,
S.N. 34/B/1,
Panchavati, Pashan,
Pune – 411008
Maharashtra
Email: *<NSM HPC system support e-Mail address>*

I acknowledge the above-mentioned usage policies & terms and conditions.

User's signature

_____

Recommended/Not Recommended

Signature and seal of HoD/Head of Organization:
Name:

_____
_

Designation:

_____
_

Department:

_____
_

Official Email address:

_____

Only for Official Use

Approving Authority for NSM

Committee Approval sought:

Verified by:
(System Co-ordinator)

Approving Authority:
Approved/Not Approved

Remarks:

_____

_____

Name, Signature, and seal of approving authority

Information required for NSM (National Supercomputing Mission) users

Domain(s)*:

Sub-domain(s)*:

Application name(s)* (Please specify other application name if not listed above):

Indicative list of Domains and some of its applications

Domain Name	Application Name
Astronomy & Astrophysics	ATHENA, CosmoMC
Atomic & Molecular Sciences	Gromacs, LAMMPS, NAMD,AMBER (Open Source)
Computational Biology	Biopython
Bioinformatics	mpiBlast, Clustaw- MPI,Fasta, Artemis, T-coffee
Chemical Sciences	Gromacs, LAMMPS, NAMD
Climate & Environment Sciences	MOM,Weather Research Forecasting model (WRF), COSMO
Computational Fluid Dynamics	OpenFoam, Tycho, Gerris flow Solver
Computational Physics	OOFEM
Computational Sciences	Gromacs, LAMMPS, NAMD,AMBER (open source)
Data analytics	RStudio, Apache Spark
Geological Sciences	Ferret
Data Visualization	GRADS, Ferret, ParaView
Material Sciences	Quantum Espresso, Q-chem
Quantum Mechanics	Abinit,NWChem,CP2K
Structural Engineering Mechanics	CODE-ASTER
AI/ML/DL	Tensorflow, Nvidia digits, pandas, numpy
Image Processing	OpenCV, Matplotlib, Scikit-image
Atmospheric/Ocean Modelling	MOM, Weather Research Forecasting model (WRF)

(Form may get rejected if no mandatory information is provided)