New scheme of MCRP 2019

Multidisciplinary Cooperative Research Program (MCRP)
学際共同利用プログラム

Supercomputers at CCS, University of Tsukuba
  open to researchers
Free-of-charge usage, but requires
  Publication of results
  Poster/talk at this annual CCS symposium
  Accomplishment Report (at the end of fiscal year)

CCS also provide resources through HPCI.

Paid usage is also available:
Large-scale general utilization (大規模一般利用)

MCRP

Important for many applications, especially in basic science

Role of “safety net” for HPCI applications.

↓

Keep high approval rate

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2018: Applications of more than 400% of available resources

Approval with substantial cut of resources
(especially for those with large-scale applications)

Need to change the scheme

Application

2018: Project leader must be affiliated in institutes in Japan.

⬇

2019: Project leader must be affiliated in institutes in Japan or the following countries:

Argentina, Australia, Austria, Belgium, Bulgaria, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Republic of Korea, Luxembourg, Netherlands, New Zealand, Norway, Poland, Portugal, Spain, Sweden, Switzerland, United Kingdom of Great Britain and Northern Ireland, and United States of America.

Application

2018: Applications in Japanese.

↓

2019: Applications either in Japanese and English.

Number of applications that one person can submit

2018: No limit → 2019: Maximum: 1

Number of projects that one person can participate in

2018: No limit → 2019: Maximum: 3

Application

- MCRP-L (Large)
  - OFP: up to 1,000,000 node*hour
  - OFP: # of nodes: up to 2,048
- MCRP-M (Medium)
  - OFP: up to 300,000 node*hour
  - OFP: # of nodes: up to 1,024
- MCRP-S (Small)
  - OFP: up to 50,000 node*hour
  - OFP: # of nodes: up to 1,024
- MCRP-T (Trial)
  - OFP: up to 10,000 node*hour
  - OFP: # of nodes: up to 256

Projects requiring more than 1M node*hour. ➡ HPCI

Application

Language

- MCRP-L (Large)
  - English only
- MCRP-M (Medium)
  - English or Japanese
- MCRP-S (Small)
  - English or Japanese

Reviewing

- MCRP-M/S
  - Review by Cooperative Research Committee
  - Committee (Internal (CCS) and external (domestic) members, Member ratio 1:2)
- MCRP-L
  - Review by Cooperative Research Committee + International review

Reviewing based on the written documents only

(No presentation/interview)

Center for Computational Sciences, University of Tsukuba

2019 Multidisciplinary Cooperative Research Project (MCRP-L)

Date(YYYY/MM/DD): / /

(Please carefully read instruction for the proposal preparation.)

1. Project name and representative

Representative (Surname, Given names):

Affiliation:

Project name(English):

課題名(日本語) : (if available)

(You can enlarge the following spaces, up to the maximum 6 pages in total.)

2. Scientific significance

2.1 Scientific background

2.2 Purpose of the Project

2.3 Expected achievements

3. Past Research, Ongoing project, Project plan, and Requested resources

Research Achievements in the past

Provide the (hyper)link to your report for 2017 MCRP here, if you have.
https://www.ccs.tsukuba.ac.jp/wp-content/uploads/sites/14/2018/05/17a**.pdf

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Ongoing MCRP

Do you currently have ongoing MCRP in 2018? [Yes / No]

If Yes, fill in the following:

Name of Computer	OFP	COMA
Project code	xg18i0**	********
Initially approved resources (node×hour)		
Used resources so far (node×hour)		

Describe its relation to the present proposal (2019):

Project Target and Plan for 2019.4 – 2020.3

Requested resources	OFP	(PACS-X)
node×hour		
Maximum # of nodes		
Disk capacity	TB	TB

Utilization Plan for 2019.4 – 2020.3

Necessity and Reason of Requested Resources

2019 HPCI application (http://www.hpci-office.jp/folders/english)

Have you applied for the 2019 HPCI application as a representative? [Yes / No]

If Yes, provide the following:

Name of computer:

Project name (Japanese and/or English):

3. Preparation and Reason for Requested Resources

Preparation Status (Program development, Test operation, etc .)

Provide the following information for each program.

Program name			
Parallelization method	[MPI / OpenMP / MPI+OpenMP / others( )]		
Parallel efficiency measurement	Scaling	[Strong / Weak]	
	Total # of threads ($n \geq m$)	m =	n =
	Execution time	T_m = sec	T_n = sec
	Effective parallelism*1	α = %	
Product run	Target # of threads	OFP: N=	PACS-X: N=
	Parallel efficiency*2	E_N =	E_N =

(If you use more than one program, copy and repeat this table.)

Similar application forms for MCRP-M/S, but with less fields.

FPGA part in CYGNUS

- Why FPGA is necessary?
- What kind of calculation you want to use FPGA?
- Language environments for FPGA
  - Verilog HDL, OpenCL, etc.
- Preparation for FPGA

- Collaboration with computer scientists in CCS-HPC division

Approval

- MCRP-L (Large)
  - Number of approval is limited. [~ 4]
  - *Disapproved applications will be reconsidered in MCRP-M.*
- MCRP-M (Medium)
  - High approval rate
  - Resources could be substantially reduced.
- MCRP-S (Small)
  - High approval rate

2019 MCRP

- Application period
  - December 2018– January 2019
- Supercomputers
  - Oakforest-PACS (OFP)
  - ”CYGNUS” (CPU+FPGA)
- Usage
  - April 2019 – March 2020

The upper limit of applied resources (1M n*h for OFP).
We encourage “heavy users” of CCS supercomputers to apply for HPCI projects too.