**Detail description of the project**

**(General Use project)**

**This document will be reviewed by the committee and must be filed with grant request form (Form2).**

**Name of project representative：**

**Laboratory in RIKEN:**

**Position title in RKEN:**

**Research topic (Project name):**

**Related Project ID:**

**(Last FY or Quick Use project. For addition of BW, current FY project)**

**Names and Laboratories of all members**

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| **If your primary employer is not RIKEN (e.g. visiting scientist), describe the both laboratories.**  **Example: John Smith (1), Jane Smith (1, 2)**   1. **AAA Center, BBB Laboratory, (2) Department of ZZZ, Graduate School of YYY, ZZZ University** |

1. **[Research description]**

Please describe in a comprehensible way. You can attach reference figures such as graphs or illustrations.

* 1. **Scientific background, research purpose, scientific characteristics (10--20 lines)**

If this research thesis is related to research conducted at a laboratory or by a research group or is a part of them, describe their relation specifically.

* 1. **Research plan, computation methods and expected achievements**
* Describe the actual roll of each member.
* If your primary employer is not RIKEN (e.g. visiting scientist), describe the actual role you will play in the collaborative research.
* If you have conducted a related research using supercomputer systems (in RIKEN or others), provide current research situation and future schedule.

1. **[Application CPU resources]**
   1. **Necessary computation time**

* Describe necessary “core hours” for each resource. See “SYSTEM OVERVIEW” (<http://i.riken.jp/en/supercom/overview/>) for the details of the system.
* Only projects for GW-MPC and BW-MPC are recruited. General use projects of GW-ACSG and GW-ACSL will not be recruited in FY2018.
  + If you require more than 1% of the computational resources of GW-ACSG or GW-ACSL, you will have to apply by e-mail. The application should include a brief description of the reason why GW-ACSG or GW-ACSL is required, and necessary CPU resources. Each user and project cannot apply more than 20% of the computational time of each resource.
* Users should apply for General Use to use 1% or more of the computational resources of GW-MPC or BW-MPC. The application is required for use of 1% of either one of the computational resources.
  + The total allocatable CPU resources are 35% (GW-MPC) and 10% (BW-MPC) of the total CPU resources in this FY respectively.
  + Each user and project cannot apply more than 10% (GW-MPC) or 5% (BW-MPC) of the computational time of resource respectively.
* It costs US$ 6.6M for the operation of the supercomputer system in a year.

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| The allocatable CPU resources and the upper limits are as follows:   * The upper limit of GW-MPC(10% of the total CPU resources) **30,274,560 core hours** * The upper limit of BW-MPC (5% of the total CPU resources) **14,716,800 core hours**   NOTE: Allocated computation time is not guaranteed but maximum value.   * The total allocatable CPU resources are 35% (**105,960,960 core hours**) for GW-MPC and 10% (**29,433,600 core hours**) for BW-MPC of the total CPU resources in this FY respectively. * Usage by other users and maintenance of system will affect the consumable computation time of user’s project. |

* GW Massively Parallel Supercomputer (GW-MPC)
  + Total Computation Time core hours
* BW Massively Parallel Supercomputer (BW-MPC)
  + Total Computation Time core hours

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| Calculation method:  Computation time is a total of [number of cores x elapsed time] for all jobs. For example, if you wish to run 500 jobs on 1024 cores for 24 hours, your computation time will be 1024 x 24 x 500 = 12,288,000 core x hours. If you run multiple jobs using the different numbers of cores, write a total number |

* 1. **Justification for the computation time you requested in the item 2.1.**
* Please describe the demand of the number of jobs computation time you mention in 2.1. Describe the basis and necessity of the number of parallelization and jobs.
  + Describe the necessary computation time (core hours) of each member. Core hours should be described for each subsystem.
* Please describe using the values measured in the Quick Use project or last FY project
* Justification for computation time is treated as important by the Review Committee. Please provide adequate explanation.

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| Example: My fluid computation on 1024 cores took 24 hours to complete. Since I wish to run this job with 500 different parameters, I will need 12,288,000 core x hours as I requested above. |

1. **[Reference Publications]**

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| # List publications you have made pertinent to this research, if any.  # If preprints or reprints are available, submit them electronically (PDF, PS or Microsoft Word). |