Fugaku Commercial Software
Ansys Fluent
User's Guide

June, 2025

Version	Revision	Date
1.0		2025/06/30

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１. Preface

Purpose of this document

This document describes how to use Ansys Fluent, which is maintained by the RIKEN Center for Computational Science (R-CCS) on the supercomputer "Fugaku".

- For general information on how to use Fugaku, please refer to the manuals in the Fugaku Portal
- Please refer to the Ansys Fluent manual for general Ansys Fluent usage

Prerequisite

The user shall have executed procedures such as the conclusion of a license agreement for Ansys Fluent in accordance with the "Flow to Start Using" and shall have received a notice of completion for the software usage environment.

When using commercial software installed on Fugaku, R-CCS and cooperating organizations cooperate with software vendors to manage software licenses (operation checks) and conduct investigations when inquiring about software operation. Therefore, license information and inquiries may be shared among R-CCS, cooperating organizations, and software vendors. Please understand this in advance.

2. Executing Ansys Fluent

The following is an example of a job script. Please modify it as appropriate for your work environment. Please refer to the description below for the red parts. This job is submitted to the computation node.

Table 1 Sample Script (Using License Manager on Fugaku)

```
#!/bin/bash
#PJM -L "node=2"
#PJM --mpi "proc=96"
#PJM -L "elapse=00:30:00"
#PJM -L "rscgrp=small"
#PJM -L "freq=2200,eco_state=2"
#PJM -S
#PJM -g <groupname>
#PJM -x PJM_LLIO_GFSCACHE=/vol0004

module use /vol0004/apps/isv/Fluent/modulefiles
module load Fluent

# Please define ANSYSLMD_LICENSE_FILE when using license manager ======
export ANSYSLMD_LICENSE_FILE=port number of license server@IP address of license
server

fluent 3ddp -t${PJM_MPI_PROC} -g -ssh -mpi=fujitsu -i "jou file name"
```

Table 2　Sample Script (Using Ansys Elastic Licensing authentification)

```
#!/bin/bash
#PJM -L "node=2"
#PJM --mpi "proc=96"
#PJM -L "elapse=00:30:00"
#PJM -L "rscgrp=small"
#PJM -L "freq=2200,eco_state=2"
#PJM -S
#PJM -g <groupname>
#PJM -x PJM_LLIO_GFSCACHE=/vol0004

module use /vol0004/apps/isv/Fluent/modulefiles
module load Fluent

# Please define ANSYS_ELASTIC_CLS when Ansys Elastic Licensing authentification ==
export ANSYS_ELASTIC_CLS=Cloud License Server ID:Cloud License Server PIN

fluent 3ddp -t${PJM_MPI_PROC} -g -ssh -mpi=fujitsu -i "jou file name"
```

2.1. Settings for Ansys Fluent

- #PJM -L "freq=2200,eco_state=2"

    This option specifies the execution mode of Fugaku. In the example above, the boost eco mode is specified. The energy-efficient execution mode may differ depending on the input data. Therefore, please execute in the mode with the lowest energy consumption and acceptable performance degradation. For more detail, please refer to:

    https://www.fugaku.r-ccs.riken.jp/en/restriction/20240426_01
    https://www.fugaku.r-ccs.riken.jp/en/operation/20250325_01

- #PJM -x PJM_LLIO_GFSCACHE=/vol0004

    When submitting jobs, be sure to specify /vol0004 in the environment variable PJM_LLIO_GFSCACHE.

- module command

    Used to set environment variables.

- module use

    Specify where *modulefile* is stored. Do not change it.

- module load *modulefile*

  Set the environment variables defined in *modulefile*.

module load Fluent

  Abave is specified, the latest version installed on Fugaku is used.

  Important: Environment variables which are set by the module load command may include runtime parameters. When specifying runtime parameters, be sure to specify them after the module load command.

  To use a specific version, change the *modulefile*.

Example: Using 2025R1 version   module load Fluent/2025R1

  ➢ module avail

  Displays a list of available *modulefiles*.

module use /vol0004/apps/isv/Fluent/modulefiles module avail Fluent

  ➢ module show *modulefile*

  Displays what is set by the module command.

Example: Show what is set when Fluent is specified
  module use /vol0004/apps/isv/Fluent/modulefiles
  module show Fluent

- ANSYSLMD_LICENSE_FILE

  When using License Manager on Fugaku, specify the IP-address and port-number of the license server. Sets the address and the port number you received from the Fugaku Support in the format "port-number@IP-address".

- ANSYS_ELASTIC_CLS

  When using Ansys Elastic Licensing, specify the information of the Cloud License Server. Sets Cloud License Server ID (CLSID) and Cloud License Server PIN (CLS PIN) you received from a software vender in the format "Cloud License Server ID:Cloud License Server PIN".

３. Change in the environment of Ansys Fluent

When environmental changes are made to Ansys Fluent, the details and date of the changes will be posted on the Fugaku Portal. Please check the details of the changes and take action if necessary. The following is a list of expected changes, their impact on users, and how to deal with them.

- **Ansys Fluent Version Upgrade**
    If you use the latest version specified with Fluent in module load, the software version executed after the change date will be changed to the newly latest version. If you want to keep using the currently using version, add the product version to the module load specification.

- **Ansys Fluent specific version removal**
    If the version to be deleted is specified in module load, the software will not be available after the change date. Please change the module load settings to switch to another available version.

４. Support

For general information about Ansys Fluent, please contact your licensee. When you contact your licensee, please let you inform to your licensee that you use Fugaku.
Please contact the Fugaku support (https://fugaku.zendesk.com/hc/en-us) for Fugaku-specific content.