A deveropment of IREM on the MMX.

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● Abstract

Development of the Interplanetary Radiation Environment Monitor (IREM) to be installed on the Martin Moons eXploration (MMX).

MMX's flight path is a round trip from Earth to the vicinity of Mars, and its purpose is to measure the radiation environment along this route.

● Reasons and benefits of using JAXA Supercomputer System

This is a device that measures the amount of charge generated when radiation (charged particle beam) passes through a silicon detector.By individually measuring the amount of charge of each of the 19 stacked silicon detectors, it is possible to determine the incident energy of radiation.

A huge amount of calculation is required to simulate the entire measurement range using Geant4.

● Achievements of the Year

Our goal in 2023 was to try running Geant4, but we were unable to make adjustments to the point where Geant4 would work.

It is planned to continue in the next year as well.

● Publications

N/A

● **Usage of JSS**

● **Computational Information**

Process Parallelization Methods	MPI
Thread Parallelization Methods	Automatic Parallelization
Number of Processes	1 - 10
Elapsed Time per Case	1 Second(s)

● **JSS3 Resources Used**

Fraction of Usage in Total Resources[1](%): 0.00

Details

Computational Resources		
System Name	CPU Resources Used (core x hours)	Fraction of Usage[2](%)
TOKI-SORA	0.00	0.00
TOKI-ST	97.44	0.00
TOKI-GP	0.00	0.00
TOKI-XM	0.00	0.00
TOKI-LM	0.00	0.00
TOKI-TST	101.99	0.00
TOKI-TGP	0.00	0.00
TOKI-TLM	0.00	0.00

File System Resources		
File System Name	Storage Assigned (GiB)	Fraction of Usage[*2] (%)
/home	0.00	0.00
/data and /data2	0.00	0.00
/ssd	0.00	0.00

Archiver Resources		
Archiver Name	Storage Used (TiB)	Fraction of Usage[*2] (%)
J-SPACE	0.00	0.00

[*1]: Fraction of Usage in Total Resources: Weighted average of three resource types (Computing, File System, and Archiver).

[*2]: Fraction of Usage：Percentage of usage relative to each resource used in one year.

● **ISV Software Licenses Used**

ISV Software Licenses Resources		
	ISV Software Licenses Used (Hours)	Fraction of Usage[*2] (%)
ISV Software Licenses (Total)	0.00	0.00

[*2]: Fraction of Usage：Percentage of usage relative to each resource used in one year.