



東京大学
THE UNIVERSITY OF TOKYO



東京大学情報基盤センター
INFORMATION TECHNOLOGY CENTER, THE UNIVERSITY OF TOKYO

Overview of Oakbridge-CX

How to login

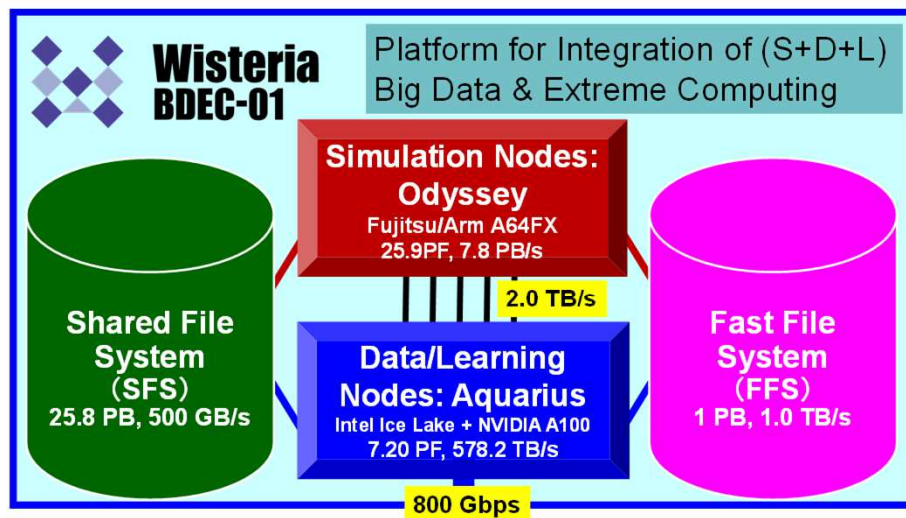
Information Technology Center
The University of Tokyo

If you have any questions, please contact Kengo Nakajima at [nakajima\(at\)cc.u-tokyo.ac.jp](mailto:nakajima(at)cc.u-tokyo.ac.jp)
Please do not contact “OBCX-Soudan”

Before Accessing OBCX ...

- **Please make sure that:**
 - the OS of your PC is the most updated version
 - proper anti-virus software with the most updated version is installed to your PC

- Supercomputers in ITC/U.Tokyo
 - Information Technology Center, The University of Tokyo
- Login to OBCX
- After Login



Simulation Nodes
(Odyssey)



Data/Learning Nodes
(Aquarius)



Reedbush (HPE, Intel BDW + NVIDIA P100 (Pascal))

- Prototype of “Wisteria/BDEC-01” for Integration of (S+D+L)
- July 2016 – November 2021
- Our First GPU Cluster, 3.36 PF

Oakforest-PACS (OFP) (Fujitsu, Intel Xeon Phi (KNL))

- JCAHPC (U.Tsukuba, U.Tokyo), October 2016 – March 2022
- 25 PF, #32 in 57th TOP 500 (June 2020)

Oakbridge-CX (OBCX) (Fujitsu, Intel Xeon CLX)

- July 2019 – June 2023
- 6.61 PF, #97 in 57th TOP500

Wisteria/BDEC-01 (Fujitsu)

- **Simulation Nodes (Odyssey): A64FX**
- **Data/Learning Nodes (Aquarius)**
- 33.1 PF, #13 in 57th TOP 500, Operation started on May 14, 2021
- Platform for Integration of “Simulation+Data+Learning (S+D+L)”
- Innovative Software Platform “h3-Open-BDEC” supported by Japanese Government (JSPS Grant-in-Aid for Scientific Res. (S) FY.2019-2023)



Reedbush



Oakforest-PACS



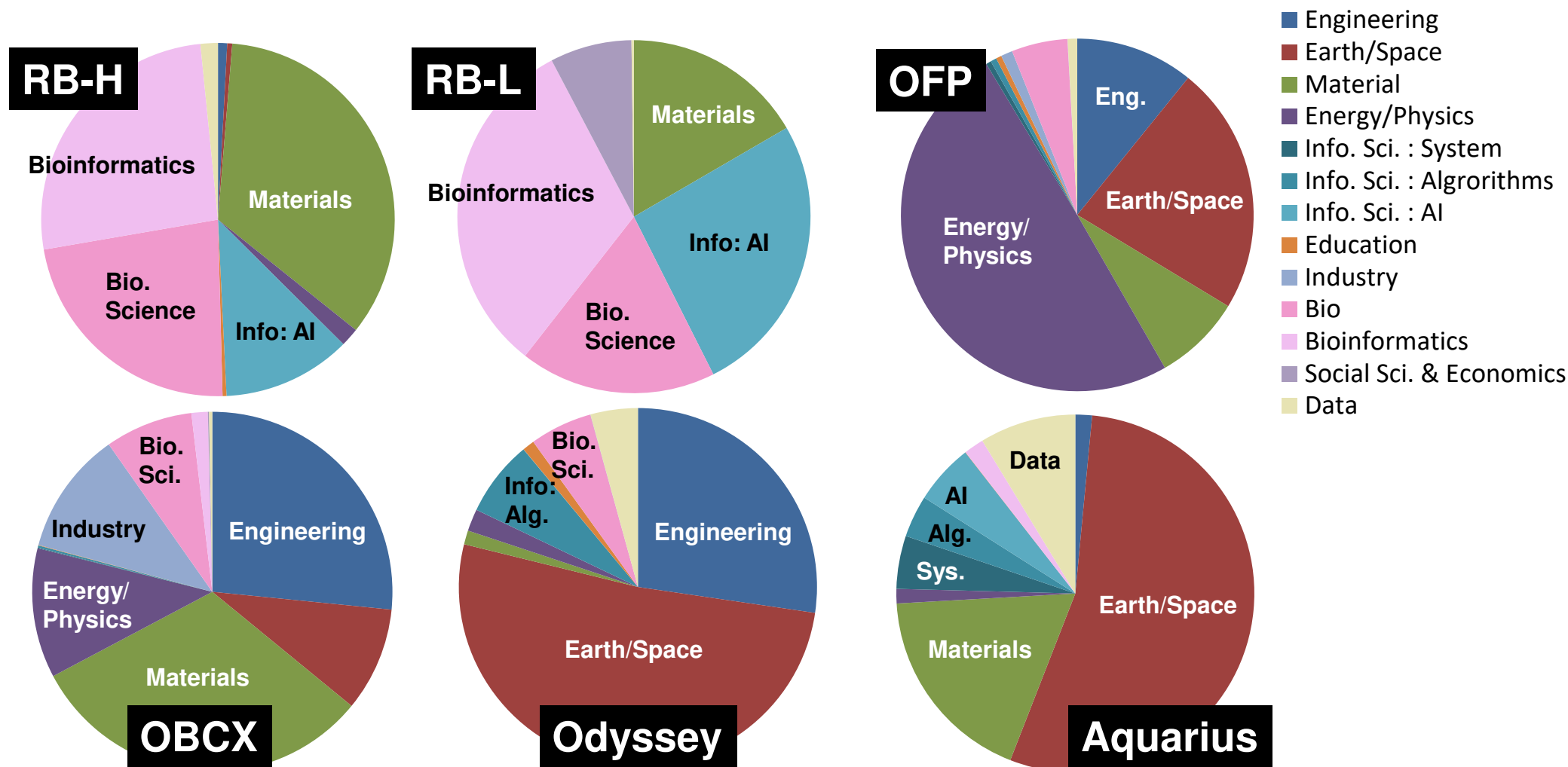
Oakbridge-CX

JPY (=Watt)/GFLOPS Rate

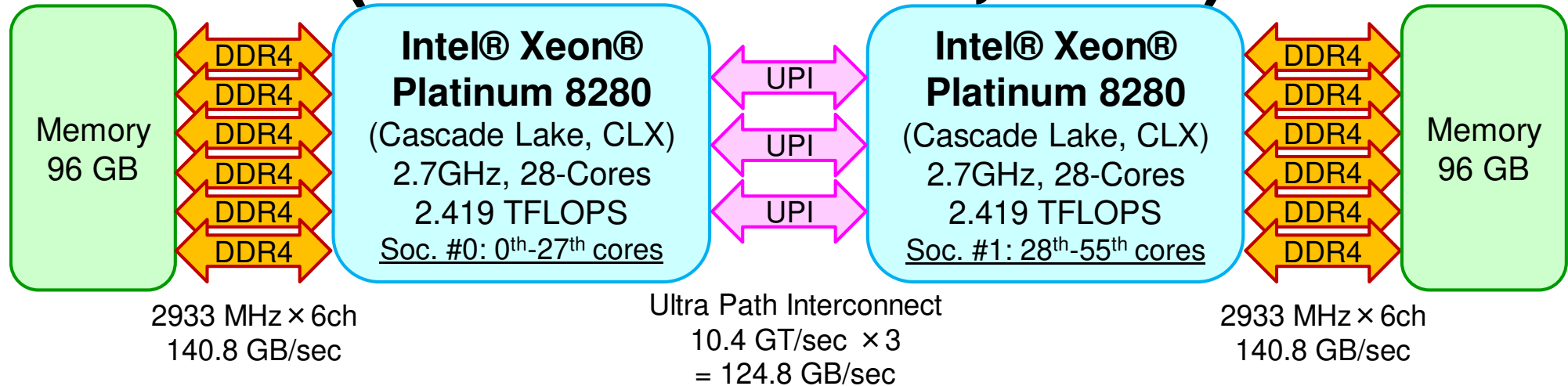
GFLOPS/W (Green 500)

System	JPY/GFLOPS Small is Good	GFLOPS/W Large is Good
Oakleaf-FX/Oakbridge-FX (Fujitsu) (Fujitsu SPARC64 IXfx)	125	0.866
Reedbush-U (HPE) (Intel Xeon Broadwell (BDW))	61.9	2.310
Reedbush-H (HPE) (Intel BDW+NVIDIA P100x2/node)	15.9	8.575
Reedbush-L (HPE) (Intel BDW+NVIDIA P100x4/node)	13.4	10.167
Oakforest-PACS (Fujitsu) (Intel Xeon Phi/KNL)	16.5	4.986
Oakbridge-CX (Fujitsu) (Intel Xeon Cascade Lake)	20.7	5.076
Wisteria-Odyssey (Fujitsu/Arm A64FX)	17.8	15.069
Wisteria-Aquarius (Intel Xeon Ice Lake + NVIDIA A100x8)	9.00	24.058

Research Area based on CPU Hours (FY.2021 (April-September))



Intel Xeon Platinum 8280 (Cascade Lake, CLX)



- 2.7 GHz
 - 32 DP (Double Precision) FLOP operations per Clock
 - FLOPS: Floating Point Operations per Second
- Peak Performance (1 core)
 - $2.7 \times 32 = 86.4$ GFLOPS
- Peak Performance
 - 1-Socket, 28 cores: 2,419.2 GFLOPS = 2.419 TFLOPS
 - 2-Sockets, 56 cores: 4,838.4 GFLOPS = 4.838 TFLOPS 1-Node

10^6 FLOPS = 1 Mega FLOPS = 1 MFLOPS
 10^9 FLOPS = 1 Giga FLOPS = 1 GFLOPS
 10^{12} FLOPS = 1 Tera FLOPS = 1 TFLOPS
 10^{15} FLOPS = 1 Peta FLOPS = 1 PFLOPS
 10^{18} FLOPS = 1 Exa FLOPS = 1 EFLOPS

Oakbridge-CX (OBCX)

- Intel Xeon Platinum 8280 (Cascade Lake, CLX), Fujitsu
 - 1,368 nodes, 6.61 PF peak, 385.1 TB/sec, 4.2+ PF for HPL **#97 in 57th Top500 (June 2021)**
 - Fast Cache: SSD's for 128 nodes: Intel SSD, BeeGFS
 - 1.6 TB/node, 3.20/1.32 GB/s/node for R/W
 - Staging, Check-Pointing, Data Intensive Application
 - **16 of these nodes can directly access external resources (server, storage, sensor network etc.) through SINET**
 - Network: Intel Omni-Path, 100 Gbps, Full Bi-Section
 - Storage: DDN EXAScaler (Lustre) 12.4 PB, 193.9 GB/sec
 - Power Consumption: 950.5 kVA
- Operation Started: July 1st, 2019



Total: 1,368 nodes

**128 nodes
with SSD**

16 of 128 nodes with SSD can access external resources directly through SINET



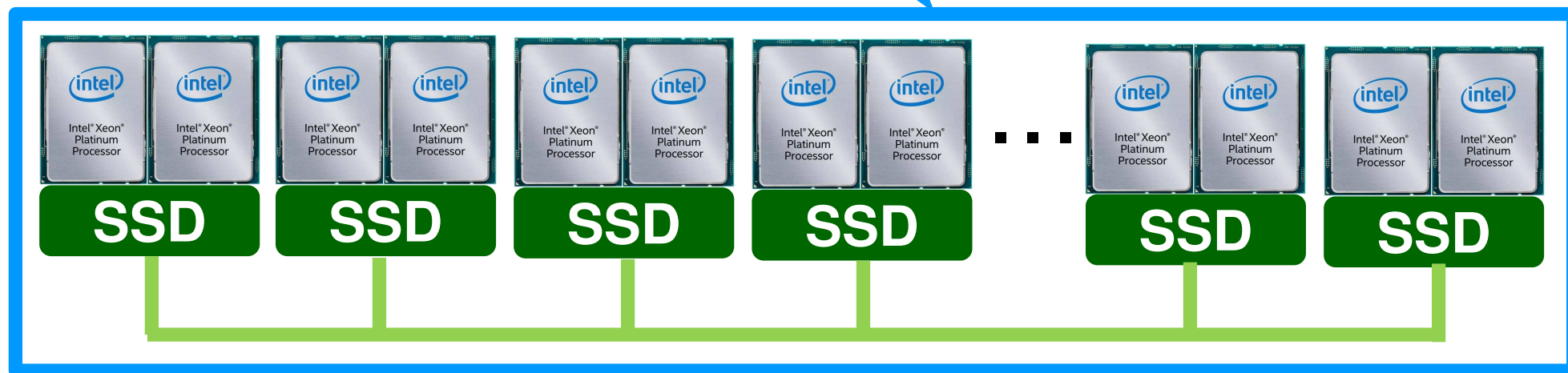
128xSSD's: Single Fast File System

Total: 1,368 nodes

128 nodes
with SSD

16 of 128 nodes with SSD can access external
resources directly through SINET

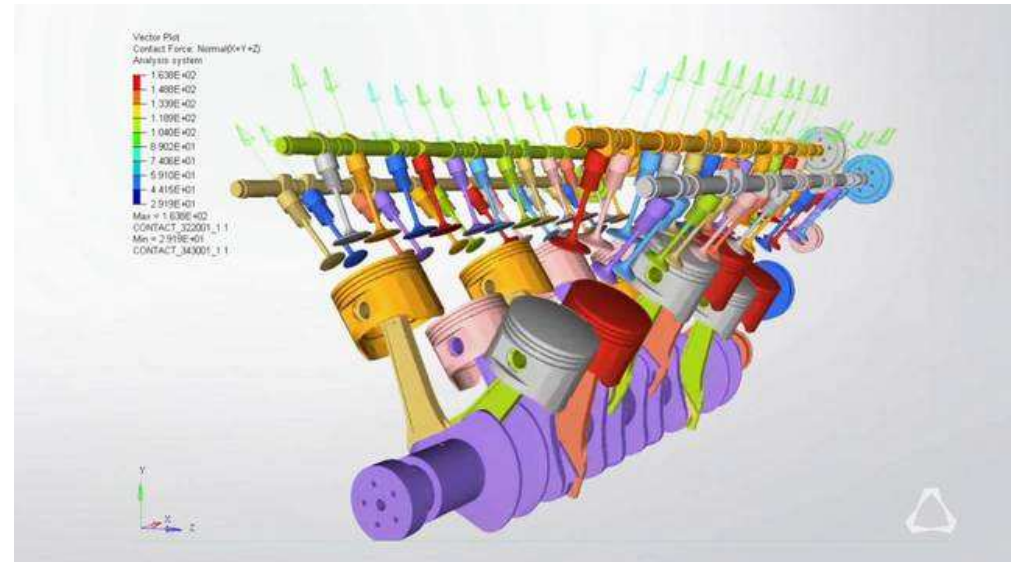
SINET5



Single Fast File System with 200+ TB

Altair Hyperworks

- Service started in January 2019
 - On Reedbush System
 - OBCX after July 2019
- Basically, Only for University Users
- Public Research Institute, and Industry Users can use upon Requests (License needed)



- Supercomputers in ITC/U.Tokyo
 - Information Technology Center, The University of Tokyo
- **Login to OBCX**
- After Login

Login to OBCX

- SSH Public Key Authentication (SSH公開鍵認証, SSH=Secure Shell): Safer than Password Authentication
- Procedures
 - **Windows: Cygwin, Mac: Unix: Terminal**
 - ① Creating Keys (Private Key, Public Key) on PC
 - **Passphrase**: Password for SSH Public Key Authentication
 - **“Empty Passphrase” is prohibited**
 - If you have already created keys on your PC before, you can skip ① (Please make sure it is with “passphrase”)
 - ② Accessing the Portal Site
 - **User ID (t73XYZ)** and **“Initial Password with 8-Characters”** (Info-1/Info-2)
 - You are requested to change **Password** after accessing the portal site
 - Several rules for number of characters, combinations etc.
 - ③ Registration of the Public Key through the Portal Site
 - ② and ③ are essential, even if you have already had UID's on OBCX
 - ④ Login to OBCX by ssh

① Creating Keys on PC (1/3)

```
$ ssh-keygen -t rsa
```

Generating public/private rsa key pair.

Enter file in which to save the key (/home/user/.ssh/id_rsa):

<Return↓>

Enter passphrase (empty for no passphrase): **Your Favorite Passphrase**

<Return↓>

Enter same passphrase again: **Same Passphrase**

<Return↓>

Your identification has been saved in /home/user/.ssh/id_rsa.

Your public key has been saved in /home/user/.ssh/id_rsa.pub.

The key fingerprint is:

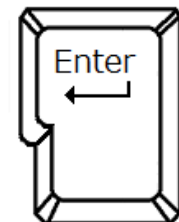
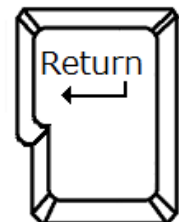
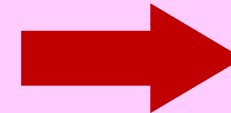
SHA256:vt880+PTcscHk0yabvxGjeRsMWLAWds+ENsDcReNwKo nakajima@KNs-NEW-VAIO

The key's randomart image is:

```
+---[RSA 2048]---+
|                |
| . o=oo. o+     |
| + 0. . . .     |
| . +o+         |
| +oB.          |
| So *o*         |
| . E   B. o     |
| .. = .  o      |
| . =oB o  +     |
| . +o+*0 ..     |
|                |
+---[SHA256]-----+
```

<Return↓>

<Return↓>



① Creating Keys on PC (1/3)

```
$ ssh-keygen -t rsa
```

Generating public/private rsa key pair.

Enter file in which to save the key (/home/user/.ssh/id_rsa):

<Return↓>

Enter passphrase (empty for no passphrase): **Your Favorite Passphrase**

<Return↓>

Enter same passphrase again: **Same Passphrase**

<Return↓>

Your identification has been saved in /home/user/.ssh/id_rsa.

Your public key has been saved in /home/user/.ssh/id_rsa.pub.

The key fingerprint is:

SHA256:vt880+PTcscHk0yabvxGjeRsMWLAWds+ENsDcReNwKo nakajima@KNs-NEW-VAIO

The key's randomart image is:

```
+---[RSA 2048]---+
|                |
|  . 0=00. 0+    |
|  + 0...  .    |
|  .+0+       .  |
|  .+0B       .  |
|  So *0*      |
|  .E  B. 0    |
|  .. = . 0    |
|  . =0B 0 +   |
|  .+0+*0 ..   |
|                |
+---[SHA256]-----+
```

Procedures

- **ssh-keygen -t rsa <Return↓>**
- **<Return↓>**
- **Your Favorite Passphrase <Return↓>**
- **Same Passphrase <Return↓>**
- **“Empty Passphrase” is prohibited**

① Creating Keys on PC (2/3)

```
$ cd ~/.ssh
```

```
$ ls
```

```
id_rsa
```

⇒秘密鍵 (Private Key)

```
id_rsa.pub
```

⇒公開鍵 (Public Key)

```
$ cat id_rsa.pub
```

```
ssh-rsa
```

```
AAAAB3NzaC1yc2EAAAADAQABAAQDA6Inm0YYaCrWjQDukjiNEfdW8veUwJyZtEI3oDu0A28  
eey6p0wbtI7JB09xnI1707HG4yYv0M81+/nIAHy5tAfJly0dsPzjTgdTBLdgi3cSf5pWEY6U96  
yaEr0Ei8Wge1HkXrhcwUjGDVTzvT0Refe6zLdRziL/KNmmesSQfR5lsZ/ihsjMgFxGaKsHHq/I  
ErCtHIIIf9V/Ds2yj6vkAaWH6asBn+ZsRiRFvwHPhkYAnp/j3LY6b8Qfqg0p4WZRenh/HgySWT  
YIGi8x67VzMaUIm9qIK0QFMCaK2riviX1fmbwyWJ/vrWDqiek6YXoxLDu+GPeQ4CPvxJcZnqF9g  
f3 nakajima@KNs-NEW-VAIO
```

① Copying the Public Key (3/3)

```
$ cd .ssh
```

```
$ ls
```

```
id_rsa
id_rsa.pub
```

```
$ cat id_rsa.pub
```

```
ssh-rsa
```

```
AAAAB3NzaC1yc2EAAAADAQABAAQDA6Inm0YYaCrWjQDukjiNEfdW8veUwJyZtEI3oDu0A28
eey6p0wbtI7JB09xnI1707HG4yYv0M81+/nIAHy5tAfJly0dsPzjTgdTBLdgi3cSf5pWEY6U96
yaEr0Ei8Wge1HkXrhcwUjGDVTzvT0Refe6zLdRziL/KNmmesSQfR5lsZ/ihsjMgFxGaKsHHq/I
ErCtHIIIf9V/Ds2yj6vkAaWH6asBn+ZsRiRFvwHPhkYAnp/j3LY6b8Qfqg0p4WZRenh/HgySWT
YIGi8x67VzMaUlm9qIK0QFMCaK2riVX1fmbwyWJ/vrWDqiek6YXoxLDu+GPeQ4CPvxJcZnqF9g
f3 nakajima@KNs-NEW-VAIO
```

Procedures

- **cat id_rsa.pub <Return↓>**
- setting the cursor on “ssh-rsa”
- selecting from “ssh-rsa” to “f3” on the last line and “copy”
- **You can include “nakaima@KNs-NEW-VAIO”, but registration may fail if multi-byte characters are there (This info. may not appear in certain OS)**

② Accessing the Portal Site (1/3)

- Please prepare 2 e-mails from me
- Info-1
 - User ID: t73XYZ
- Info-2
 - Initial Password (8-Characters): e.g. Pas#w0rd

System Information/Portal Site

- Oakbridge-CX (OBCX) Japanese
 - <https://www.cc.u-tokyo.ac.jp/supercomputer/obcx/service/>
 - <https://obcx-www.cc.u-tokyo.ac.jp/cgi-bin/hpcportal.ja/index.cgi>
- Oakbridge-CX (OBCX) English
 - <https://www.cc.u-tokyo.ac.jp/en/supercomputer/obcx/service/>
 - <https://obcx-www.cc.u-tokyo.ac.jp/cgi-bin/hpcportal.en/index.cgi>

② Accessing the Portal Site (2/3)

<https://obcx-www.cc.u-tokyo.ac.jp/cgi-bin/hpcportal.en/index.cgi>

Oakbridge-CX User Portal

[English/Japanese]

Login

Enter user ID and password then click [Login] button.

user ID

password:

Login

Reset

Please

User ID (t73XYZ)

Initial Password with 8 Characters

- Internet Explorer 11 and over
- Microsoft Edge 44 and over
- Safari 12.0.2 and over
- Firefox 66 and over
- Google Chrome 72 and over

Copyright 2019 FUJITSU LIMITED

② Changing Initial Password (2/3)

Oakbridge-CX User Portal

Logout

Change Password

Only Oakbridge-CX User Portal password is supported by this function.

Current password	
New password	
New password(re-enter)	

Change

Initial Password (8 Char's)

Type New Password (Twice)

Password Policy

- ✓ at least eight characters in length
- ✓ should not contain three or more characters from current password
- ✓ should not be the same as the past 2 times.
- ✓ should contain all character types of lower case letters, upper case letters, arabic numbers, and special characters
- ✓ special characters can be used are as follow:
blank, !, ", #, \$, %, &, ', (,), *, +, ,, -, ., /, :, ;, <, =, >, ?, @, [, ¥,], ^, _, ` , {, |, }, ~,
- ✓ not a name or linux dictionary word
- ✓ do not contain multi-byte characters

③ Registration of the Public Key (id_rsa.pub)

Oakbridge-CX User Portal

https://obcx-www.cc.u-tokyo.ac.jp/cgi-bin/hpcportal_u.en/index.cgi

Oakbridge-CX User Portal

Information

SSH Public Key

E-mail

Password

Token usage

Disk usage

Prepost reservation

Document

OSS

Registered Public-keys

Kengon@Kengon-VAIO

Registration Method

☒ Direct Input

☐ File Upload

1. Select "SSH Public Key" Menu

2. Paste the "id_rsa.pub"

3. Click "Register"

```
ssh-rsa
AAAAB3NzaC1yc2EAAAADAQABAAQDA6InmOYYaCrWjQDukjiNEfdW8veUwJ
yZtEI3oDuOA28eey6p0wbtI7JB09xnI1707HG4yYvOM81+/nIAHy5tAfJly0d
sPzjTgdTBLdgi3cSf5pWEY6U96yaErOEi8Wge1HkXrhcwUjGDVTzvT0Ref6z
LdRziL/KNmmesSQfR5lsZ/ihsjMgFxGaKsHHq/IErCtHIIIf9V/Ds2yj6vkAa
WH6asBn+ZsRiRFvwHPhkYAnp/j3LY6b8QfqgOp4WZRenh/HgySWTYIGi8x67V
zMaUlm9qIKOQFMCaK2rivX1fmbwyWJ/vrWDqiek6YXoxLDu+GPeQ4CPvxJcZn
qF9gf3
```

Register

Notice for registering public-key.
* Line feed codes should not be included.

Copyright 2019 FUJITSU LIMITED

15:05
2020/04/12

③ Registration of the Public Key (id_rsa.pub): Direct Upload (1/4)

Oakbridge-CX User Portal

Group Manage

Logout

Information

SSH Public Key

E-mail

Password

Token usage

Disk usage

Prepost reservation

Document

OSS

SSH Public Key

Registered Public-keys	Kengon@Kengon-VAIO	ssh
------------------------	--------------------	-----

Registration Method

☐ Direct Input

☒ File Upload

SSH Public-key

参照... ファイルが選択されていません。

☒ RSA ☐ DSA ☐ ECDSA256 ☐ Ed25519

Register

Notice for registering public-key.

- *Select appropriate method of encryption.
- *RSA Public-key should be encrypted with 2048 bit.
- *DSA Public-key should be encrypted with 1024 bit.
- *ECDSA Public-key should be encrypted with 256 bit.
- *Ed25519 Public-key should be encrypted with 256 bit.
- *Invalid code such as full-length codes should not be included.

②: File Upload

③: RSA

Copyright 2019 FUJITSU LIMITED

③ Registration of the Public Key (id_rsa.pub): Direct Upload (2/4)

Oakbridge-CX User Portal

Group Manage

Logout

Information

SSH Public Key

E-mail

Password

Token usage

Disk usage

Prepost reservation

Document

OSS

Registered Public-keys

Kengon@Kengon-VAIO	ssh-rsa AAAAB3NzaC.....pWGVie6w==	表示	削除
--------------------	-----------------------------------	----	----

Registration Method

☐ Direct Input
☒ File Upload

SSH Public-key

参照... ファイルが選択されていません。

☒ RSA ☐ DSA ☐ ECDSA256 ☐ Ed25519

ファイルが選択されていません。

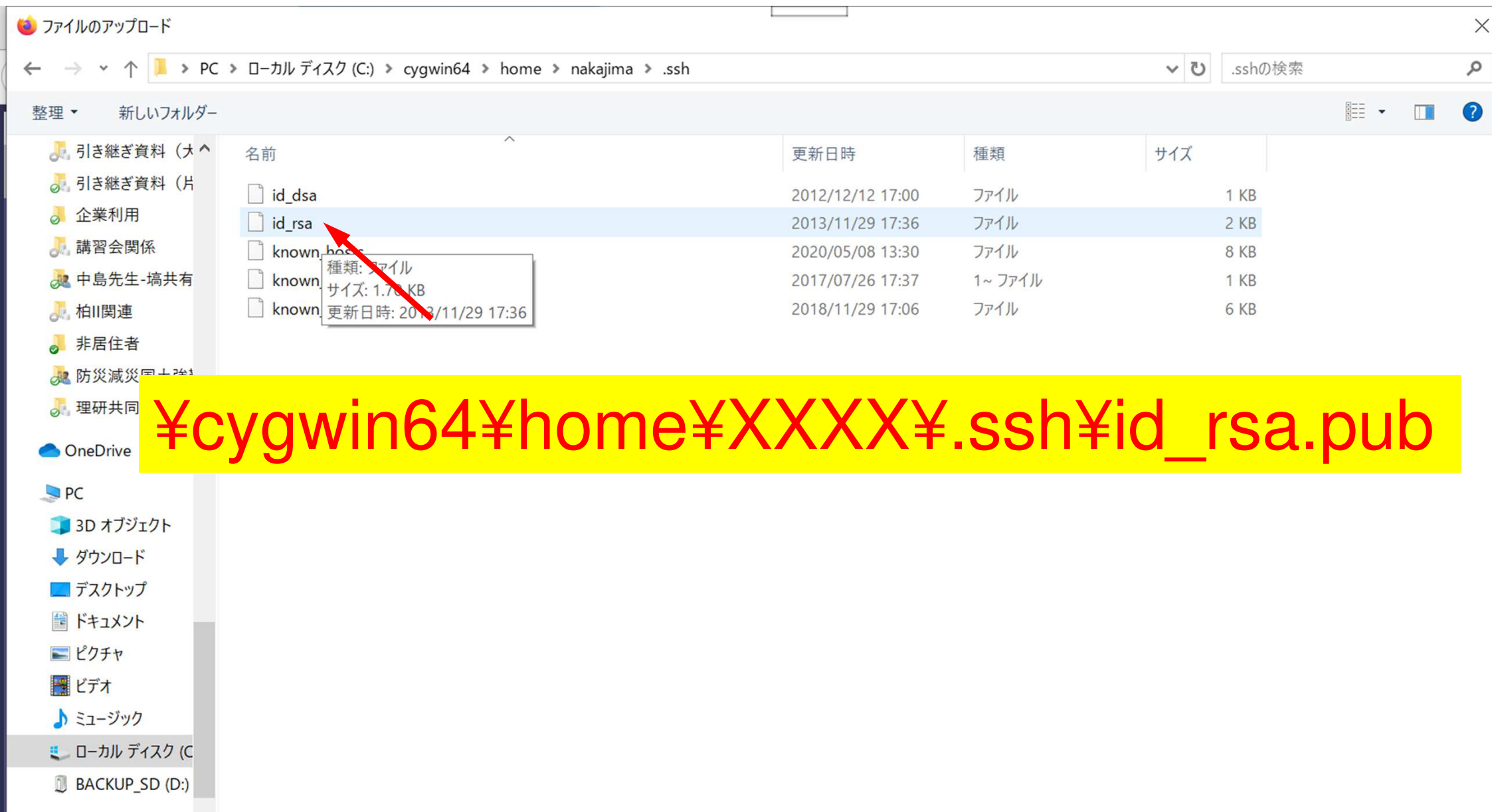
Register

Notice for registering public-key.

- *Select appropriate method of encryption (RSA or DSA or ECDSA or Ed25519.)
- *RSA Public-key should be encrypted with over 2048 bit.
- *DSA Public-key should be encrypted with over 1024 bit.
- *ECDSA Public-key should be encrypted with 256 or 384 or 521 bit.
- *Ed25519 Public-key should be encrypted with 256 bit.
- *Invalid code such as full-length codes should not be included.

Copyright 2019 FUJITSU LIMITED

③ Registration of the Public Key (id_rsa.pub): Direct Upload (3/4)



③ Registration of the Public Key (id_rsa.pub): Direct Upload (4/4)

The screenshot shows the Oakbridge-CX User Portal interface. The browser address bar displays the URL: https://obcx-www.cc.u-tokyo.ac.jp/cgi-bin/hpcportal_gm.en/index.cgi. The page title is "Oakbridge-CX User Portal". The main content area is titled "SSH Public Key".

On the left sidebar, the following links are visible: Information, SSH Public Key (selected), E-mail, Password, Token usage, Disk usage, Prepost reservation, Document, and OSS.

The "SSH Public Key" section contains the following form elements:

- Registered Public-keys:** A table showing the registered public key for the user "Kengon@Kengon-VAIO". The key is "ssh-rsa AAAAB3NzaC.....pWGVie6w==". Buttons "表示" (Show) and "削除" (Delete) are present.
- Registration Method:** Two radio buttons are available: "Direct Input" and "File Upload". "File Upload" is selected.
- SSH Public-key:** A text input field contains "参照... id_rsa". Below it, radio buttons for encryption methods are shown: RSA (selected), DSA, ECDSA256, ECDSA384, ECDSA521, and Ed25519.
- Register:** A button to submit the registration, highlighted with a red arrow.

Below the form, a notice for registering a public key is displayed:

Notice for registering public-key.
*Select appropriate method of encryption (RSA or DSA or ECDSA or Ed25519.)
*RSA Public-key should be encrypted with over 2048 bit.
*DSA Public-key should be encrypted with over 1024 bit.
*ECDSA Public-key should be encrypted with 256 or 384 or 521 bit.
*Ed25519 Public-key should be encrypted with 256 bit.
*Invalid code such as full-length codes should not be included.

The bottom of the page features a copyright notice: Copyright 2019 FUJITSU LIMITED.

④ Login to OBCX from PC (1/2)

```
$ ssh t73XYZ@obcx.cc.u-tokyo.ac.jp  
Enter passphrase for key '/home/nakajima/.ssh/id_rsa: Your Passphrase <Return↓>
```

1. `ssh t73XYZ@obcx.cc.u-tokyo.ac.jp` <Return↓>
2. **Your Passphrase** <Return↓>

You Passphrase: on p.14/15

④ Login to OBCX from PC (2/2)

Last login: Sun Apr 12 15:05:47 2020 from obcx01.cc.u-Tokyo.ac.jp

Oakbridge-CX Information

Date: May. 06, 2020

Welcome to Oakbridge-CX system

* Operation Schedule

04/24 (Fri)	20:00	-	05/29 (Fri)	09:00	Normal Operation
05/29 (Fri)	09:00	-	05/29 (Fri)	20:00	System Maintenance
05/29 (Fri)	20:00	-			Normal Operation

Schedule of future maintenance etc. will be displayed

For more information about this service, see

<https://www.cc.u-Tokyo.ac.jp/supercomputer/schedule.php>

* How to use

Users Guide can be found at the User Portal (<https://obcx-www.cc.u-Tokyo.ac.jp/>).

If you have any questions, please refer to the following URL and contact us:

<https://www.cc.u-tokyo.ac.jp/supports/contact/>

* Updated OBCX Users Guide

10/01 (Tue): v1.0

Please DO NOT contact this URL if you have questions

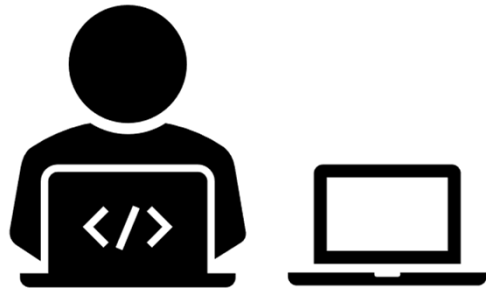
Warning: /home/t00100/.forward does not exist.

Set your email address on the User Portal [<https://obcx-www.cc.u-tokyo.ac.jp>]

[t73XYZ@obcx01 ~]\$

SSH Public Key Authentication (1/4)

① Creating Keys on PC



```
$> ssh-keygen -t rsa
```

id_rsa

秘密鍵/Private Key

+ Passphrase

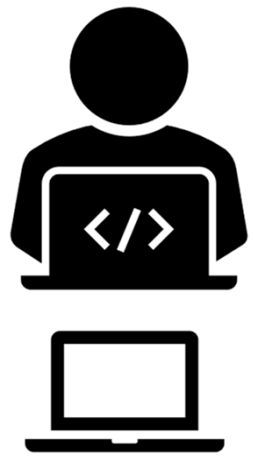
id_rsa.pub

公開鍵/Public Key



SSH Public Key Authentication (2/4)

② Accessing the Portal Site



tXYZZZ
+ Password

Portal Site
OBCX



id_rsa
秘密鍵/Private Key

+ Passphrase

id_rsa.pub
公開鍵/Public Key



tABCCC
+ Password

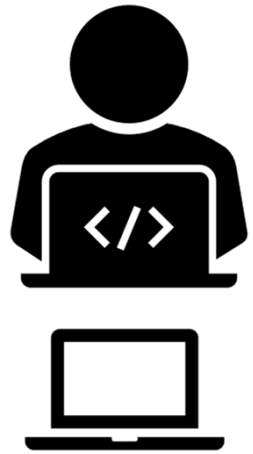
Portal Site
OFP



SSH Public Key Authentication (3/4)

③ Registration of the Public Key

Each Public Key can be installed to multiple systems



id_rsa
秘密鍵/Private Key

+ Passphrase

id_rsa.pub
公開鍵/Public Key



Portal Site
OBCX



id_rsa.pub
公開鍵/Public Key



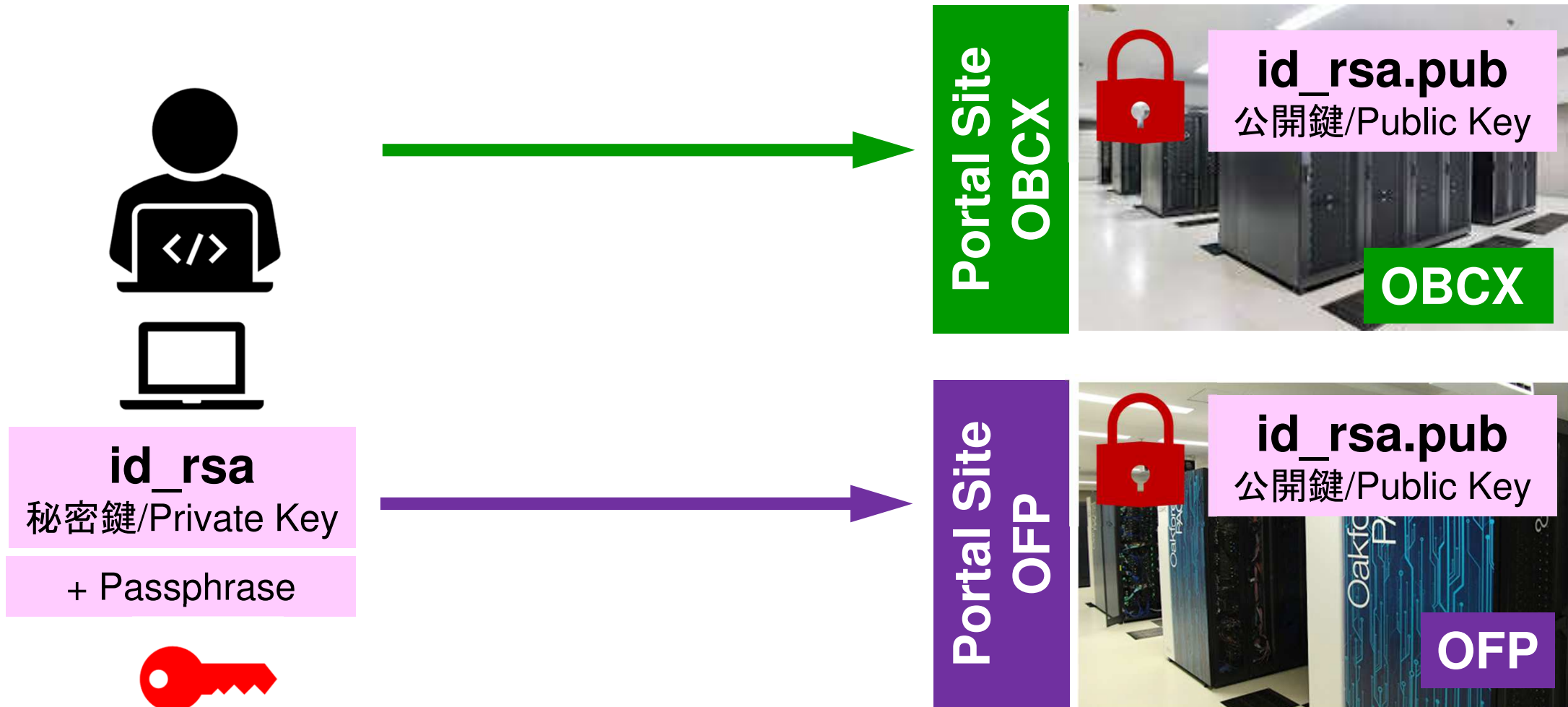
Portal Site
OFP



SSH Public Key Authentication (3/4)

③ Registration of the Public Key

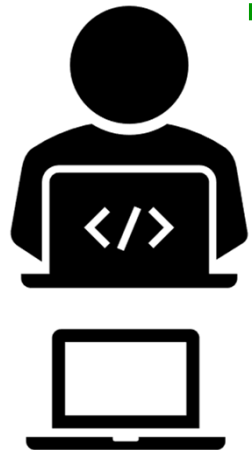
Each Public Key can be installed to multiple systems



SSH Public Key Authentication (4/4)

④ Login to OBCX etc. from PC

Private Key (id_rsa) + Passphrase



```
$> ssh tXYZZZ@obcx.cc.u-tokyo.ac.jp
```

id_rsa

秘密鍵/Private Key

+ Passphrase



```
$> ssh tABCCC@ofp.jcahpc.jp
```

id_rsa

秘密鍵/Private Key

+ Passphrase



SSH Public Key Authentication

SSH公開鍵認証

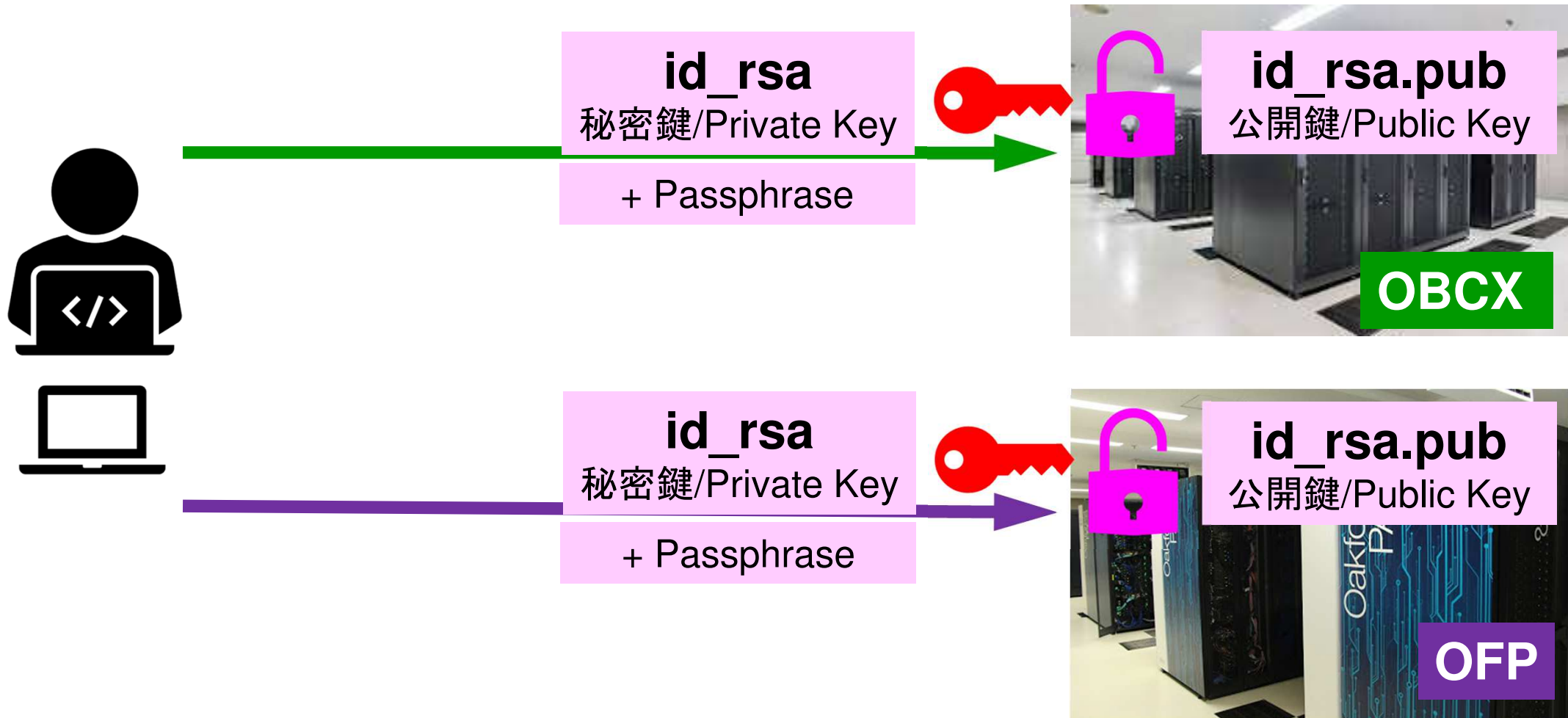
SSH= Secure Shell

- **id_rsa**
 - Private Key (秘密鍵) on Your PC
 - Keep it confidential ! (e.g. do not give it to others, do not copy, do not move etc.)
- **id_rsa.pub**
 - Public Key (公開鍵) on Supercomputers
 - You can copy, can send it to others via e-mail etc.
- If the info of the Private Key on your PC and Public Key on the supercomputer matches, you can login.
- If you have multiple PC's, please create individual set of (Private/Public) keys on each PC
 - You can register multiple Public Key's on Supercomputer

SSH Public Key Authentication (4/4)

④ Login to OBCX etc. from PC

Private Key (id_rsa) + Passphrase



If you use multiple PC's, you need to create a pair of keys (private/public) on EACH PC !!

```
$> ssh-keygen -t rsa
```



id_rsa
秘密鍵/Private Key

+ Passphrase

id_rsa.pub
公開鍵/Public Key



id_rsa
秘密鍵/Private Key

+ Passphrase

id_rsa.pub
公開鍵/Public Key

Portal Site
OBCX



Portal Site
OFP



Multiple public-keys can be registered !

Oakbridge-CX User Portal

https://obcx-www.cc.u-tokyo.ac.jp/cgi-bin/hpcportal_u.en/index.cgi

Oakbridge-CX User Portal

Information

SSH Public Key

E-mail

Password

Token usage

Disk usage

Prepost reservation

Document

OSS

Registered Public-keys

ssh-rsa AAAAB3NzaC.....JcZnqF9gf3	表示	削除
ssh-rsa AAAAB3NzaC.....pWGVie6w==	表示	削除

Registration Method

☒ Direct Input

☐ File Upload

Register

Copyright 2019 FUJITSU LIMITED

15:05 2020/04/12

Multiple public-keys can be registered !

```
$> ssh-keygen -t rsa
```



id_rsa

秘密鍵/Private Key

+ Passphrase

id_rsa.pub

公開鍵/Public Key



id_rsa

秘密鍵/Private Key

+ Passphrase

id_rsa.pub

公開鍵/Public Key

Portal Site
OBCX



id_rsa.pub

公開鍵/Public Key



id_rsa.pub

公開鍵/Public Key

Portal Site
OFP



id_rsa.pub

公開鍵/Public Key



id_rsa.pub

公開鍵/Public Key

- Supercomputers in ITC/U.Tokyo
 - Information Technology Center, The University of Tokyo
- Login to OBCX
- **After Login**

Login to OBCX from PC

```
$ ssh t73XYZ@obcx.cc.u-tokyo.ac.jp
```

Return

The authenticity of host 'obcx.cc.u-tokyo.ac.jp' can't be established.
ECDSA key fingerprint is SHA256:/XXXXX ...

Are you sure you want to continue connecting (yes/no/[fingerprint])? **yes**

Return

Warning: Permanently added 'obcx.cc.u-tokyo.ac.jp' to the list of known hosts.

Enter passphrase for key '/home/nakajima/.ssh/id_rsa':

Your Passphrase

Return

1. **ssh t73XYZ@obcx.cc.u-tokyo.ac.jp** <Return↓>
2. **yes** <Return↓>
3. **Your Passphrase** <Return↓>

Your Passphrase: on p.14/15

After 2nd Login

```
$ ssh t73XYZ@obcx.cc.u-tokyo.ac.jp
```

Return

Enter passphrase for key '/home/nakajima/.ssh/id_rsa':

Your Passphrase

Return

1. `ssh t73XYZ@obcx.cc.u-tokyo.ac.jp` <Return↓>
2. **Your Passphrase** <Return↓>

You Passphrase: on p.14/15

After Login ...

\$ pwd 

/home/t73XYZ

\$ cd /work/gt73/t73XYZ 

\$ pwd 

/work/gt73/t73XYZ

\$ cd 

\$ pwd 

/home/t73XYZ

1. “/home/t73XYZ” is the default login directory
2. Because capacity of /home is very small, please move to “/work/gt73/t73XYZ”
3. You can go back to /home/t73XYZ by typing “cd”

Copy: PC to OBCX

```
$ scp ./a.dat t73XYZ@obcx.cc.u-tokyo.ac.jp:
```

<Return↓>

“a.dat” in the Current Directory of PC is copied to /home/t62XYZ on OBCX

```
$ scp ./a.dat t73XYZ@obcx.cc.u-tokyo.ac.jp:/work/gt73/t73XYZ/test/
```

“a.dat” in the Current Directory of PC is copied to
/work/gt73/t73XYZ/test on OBCX

```
$ scp -r ./testL t73xyz@obcx.cc.u-tokyo.ac.jp:
```

“testL” directory in the Current Directory of PC and its contents are
copied to /home/t73XYZ on OBCX

```
$ scp -r ./testL t73xyz@obcx.cc.u-tokyo.ac.jp:/work/gt73/t73XYZ/test
```

“testL” directory in the Current Directory of PC and its contents are
copied to /work/gt73/t73XYZ/test on OBCX

Copy : OBCX to PC

```
$ scp t73XYZ@obcx.cc.u-tokyo.ac.jp:~/a.dat ./
```

“a.dat” on /home/t73XYZ on OBCX is copied to the Current Directory of PC

```
$ scp t73XYZ@obcx.cc.u-tokyo.ac.jp:/work/gt73/t73XYZ/test/a.dat ./
```

“a.dat” on /work/gt73/t73XYZ/test on OBCX is copied to the Current Directory of PC

```
$ scp -r t73XYZ@obcx.cc.u-tokyo.ac.jp:~/L1 ./
```

“L1” directory in /home/t73XYZ on OBCX and its contents are copied to
“L1” directory in the Current Directory on PC

```
$ scp -r t73XYZ@obcx.cc.u-tokyo.ac.jp:/work/gt73/t73XYZ/test/L1 ./
```

“L1” directory in /work/gt73/t73XYZ/test on OBCX and its contents are
copied to “L1” directory in the Current Directory on PC

Manuals on the Portal Site (1/2)

Oakbridge-CX User Portal

Logout

Information

SSH Public Key

E-mail

Password

Token usage

Disk usage

Prepost reservation

Document

OSS

Usage of documents

When using the Oakforest-PACS User's Manual Web Browsing Service, users must strictly obey the following rules.

- This system shall not be used for purposes of the development, design, manufacture, storage, or use of weapons for mass destruction, including nuclear weapons, chemical or biological weapons, or missiles, etc. for the delivery of such weapons.
- Use of this service shall be limited to the person who obtained permission to use the supercomputer.
- The information in this manual (including printed or photocopied copies) shall not be transmitted or presented to persons other than the person who have obtained permission to use the supercomputer.
- The Center has the right to immediately terminate use of the Web Browsing Service previously granted to those who violate the above rules, or who have been found to have used the supercomputer in an unauthorized manner.

In addition, the user shall not be allowed to make any protest against this decision.

agree

Copyright 2019 FUJITSU LIMITED

15:04
2020/04/12

Manuals on the Portal Site (2/2)

Oakbridge-CX User Portal

Logout

Oakbridge-CX User's Guide

Document Name	Format	Last Update
Oakbridge-CX User's Guide	 pdf	2019/10/01

Manual

Intel Parallel Studio XE 2019

Document Name	Format	Last Update
Startup Guide	 html	2019/07/01
Fortran Compiler Startup Guide	 html	2019/07/01
C++ Compiler Startup Guide	 html	2019/07/01

Intel MPI Library 2019

Document Name	Format	Last Update
Startup Guide	 html	2019/07/01

Intel MKL 2019

Document Name	Format	Last Update
Startup Guide	 html	2019/07/01
Link Line Advisor	 html	2019/07/01

Intel IPP 2019

Copyright 2019 FUJITSU LIMITED

15:04 2020/04/12

**If you have any questions, please
contact KN (Kengo Nakajima)**

nakajima(at)cc.u-tokyo.ac.jp

Do not contact ITC support directly.

**It is strictly prohibited to use the
OBCX system for purposes other than
this class.**