Participation of Russian institutions in the processing and storage of ALICE data.

Andrey Zarochentsev

SPbSU

Russian sites for Alice data processing

http://alimonitor.cern.ch/map.jsp

T1:

- RRC-KI-T1

T2

- 1. RRC-KI
- 2. JINR
- 3. IHEP
- 4. ITEP
- 5. PNPI
- 6. SPbSU
- 7. Troitsk
- 8. MEPhI
- 9. Sarov

Goals till 2021 (from 2018, 2019, 2020)

Summary

- Appearance of a new site - SARFTI
- Plans for 2018:
  - connect 8 of 9 sites to the LHCONE.
  - 4 sites will support IPv6.
- We look forward to:
  - starting all SARFTI resources and counting these in REBUS.
  - restoring production on MEPHI (in next month).

GRID 2018

GRID2021 JINR

1) 30.11.2020 - End of Life and support of SLC6
2) 12.2020 - end of support of Cream-CE

Good news

Status of T2 sites:

- 8 sites are connected to LHCONE and have IPv6 connectivity
- 7 sites moved to rhel7 on WN
- 6 sites migrated to ARC-CE from Cream-CE
- 4 sites moved to rhel7 on VoBox
- 2 sites moved to rhel7 on EOS

Work with ARC-CE

- 04/2020: migration of RU-SPbSU to ARC, tested with OPS and ALICE VOs, created a manual: https://twiki.cern.ch/twiki/bin/view/Main/ARCSiteInstallationForALICEAndWLCG
- 01/2021: update of arc6-infosys-ldap to the new version
- 06/2021: APEL migration from ActiveMQ to AMS

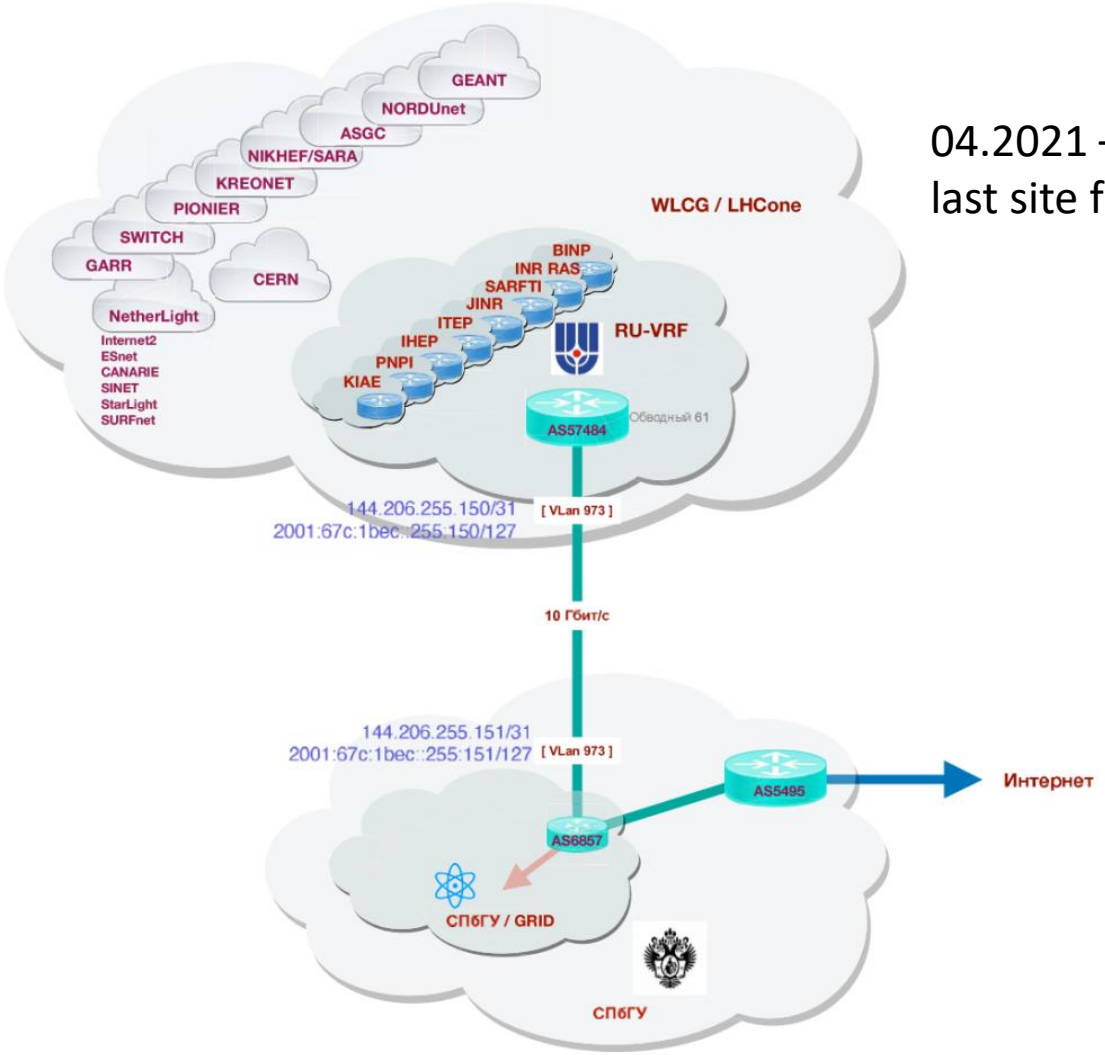
Update of EOS servers (OS, hardware, EOS release)

In order to preserve data on storage servers FSTs need to be updated one by one:

1. Drain FST server number N to other FST servers
2. Remove N^{th} FST server from EOS
3. Update server and return it back to EOS
4. N=N+1 and go to 1

JINR has updated EOS (hardware and OS) and SARFTI is in progress.

Russian sites in LHCONE



04.2021 – SPbSU connect to LHCONE, last site from RDIG

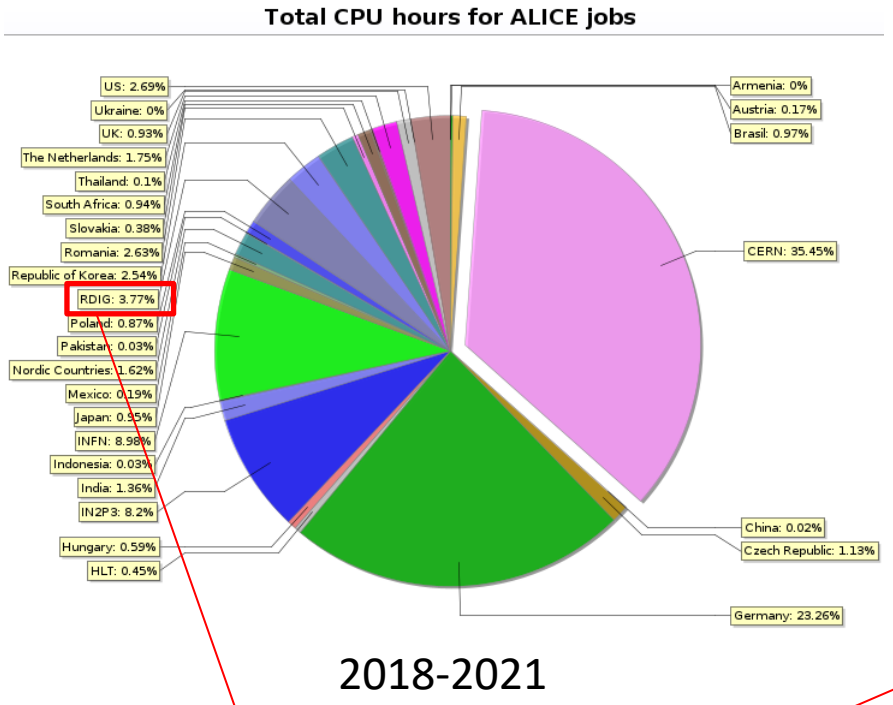
Another news….

- ALICE production was not restored on MEPhI
- Tier-2 site RRC-KI was removed from production :(

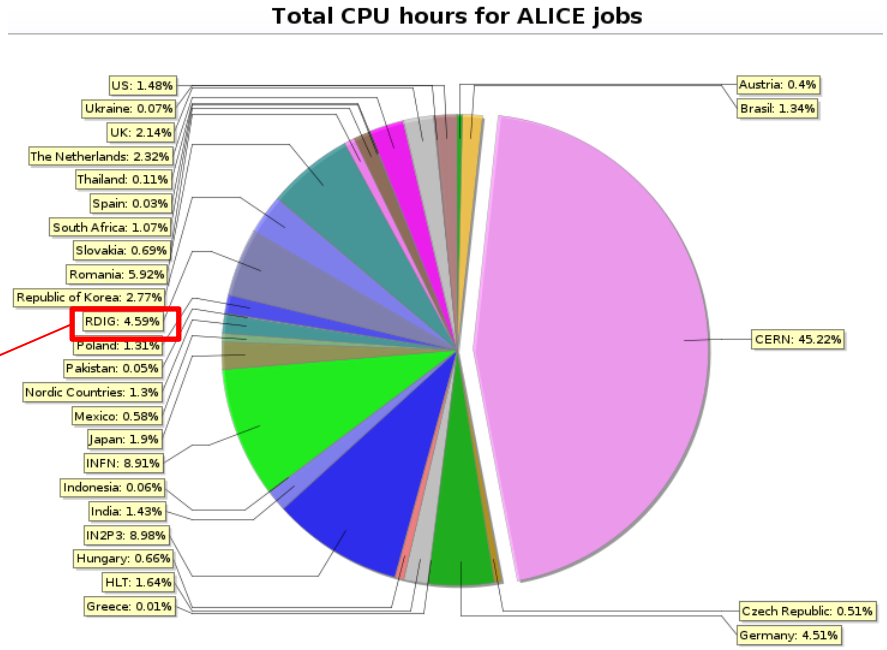
Pledged resources

	2020		2021		2022	
	DISK	CPU	DISK	CPU	DISK	CPU
JINR	1200	12000	2000	13500	2300	15525
NRC KI	316	4488	~~316~~	~~4488~~	0	0
IHEP	297	2631	314	3017	314	3017
ITEP	180	2700	180	2700	180	2700
PNPI	168	2640	168	2640	168	2640
INR RAS	113	641	113	641	113	641
SPSU	158	3696	158	3696	158	3696
SARFTI	210	7466	210	7466	210	7466
	2642	36262	3459	38148	3443	35685

RDIG production in the last 3 years vs 2018



2018-2021



2017-2018

RDIG 3,77 vs 4,59% on 2018

Availability/Reliability last 5 Month

PDF

Month	2021-02		2021-03		2021-04		2021-05		2021-06	
	Av	Re	Av	Re	Av	Re	Av	Re	Av	Re
ITEP	36.25	48.67	68.86	68.86	0	0	93.54	93.54	94.33	94.33
JINR-LCG2	100	100	100	100	100	100	99.65	99.65	99.71	100
JINR-T1	99.99	99.99	99.94	99.94	99.88	99.88	100	100	99.71	100
RRC-KI	96.41	100	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
RRC-KI-T1	100	100	100	100	99.92	100	100	100	100	100
ru-PNPI	100	100	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
RU-Protvino-IHEP	99.84	99.84	98.68	98.68	100	100	100	100	100	100
RU-SARFTI	93.33	93.33	95.71	95.71	84.12	84.12	0	0	73.46	73.46
RU-SPbSU	97.44	97.44	98.35	98.35	63.13	70.89	42.91	42.91	49.84	49.84
Ru-Troitsk-INR-LCG2	99.95	99.95	98.4	98.4	99.86	99.86	99.51	99.51	46.03	46.03
	Av	Re	Av	Re	Av	Re	Av	Re	Av	Re

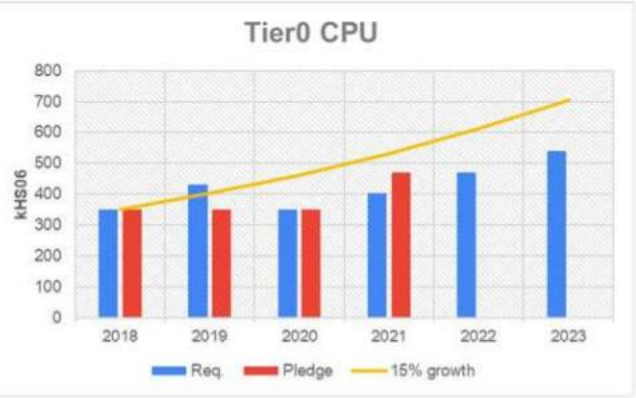
Summary

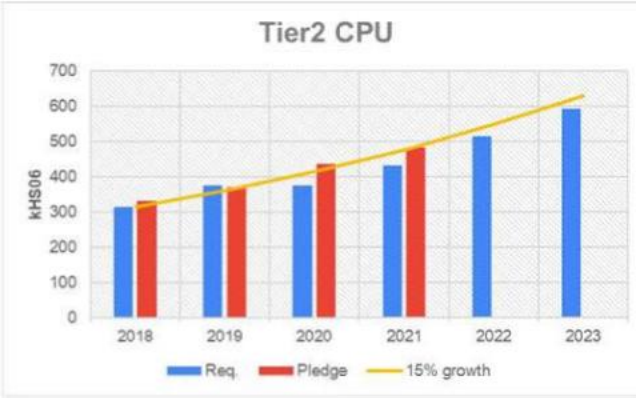
- Most Russian sites support ALICE updated requirements
- Most Russian sites support ALICE data processing on previous level
- Some sites are removed from production
- Some sites do not have a sufficient support (we can see it in Av/Re table)
- Most sites' hardware is not upgraded (and sites have no realistic plan of upgrade)

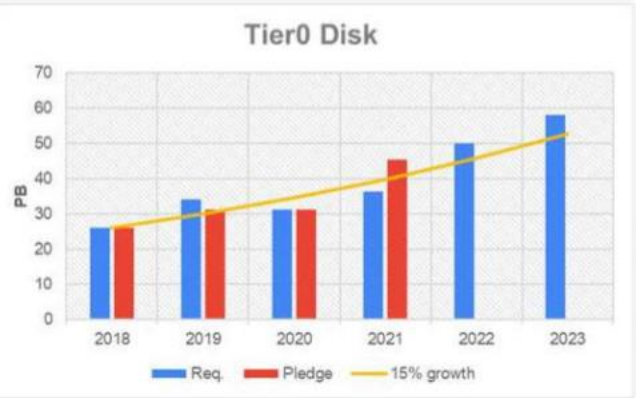
Thank you for your attention!
Questions?

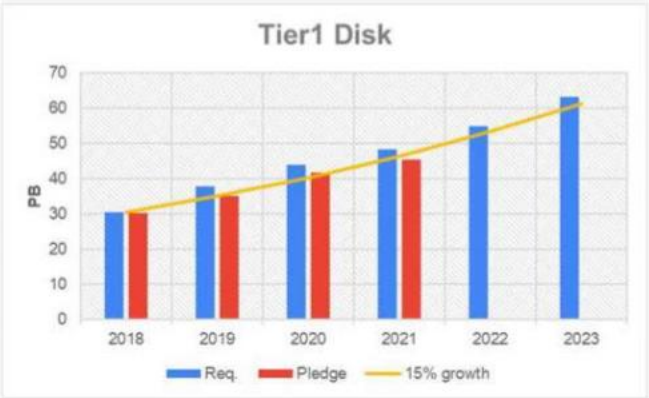
BACKUP SLIDES

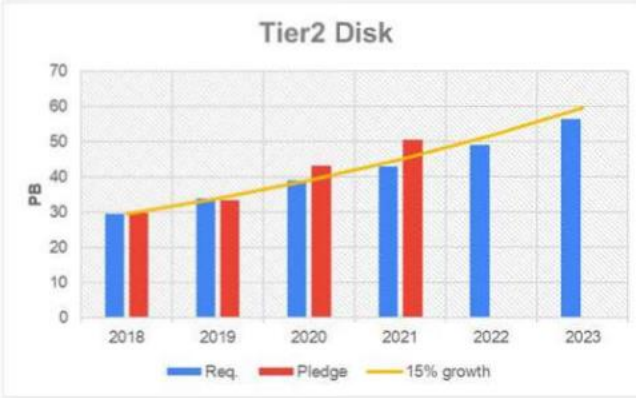
Expected growth of CPU and disk space in 2022-2023









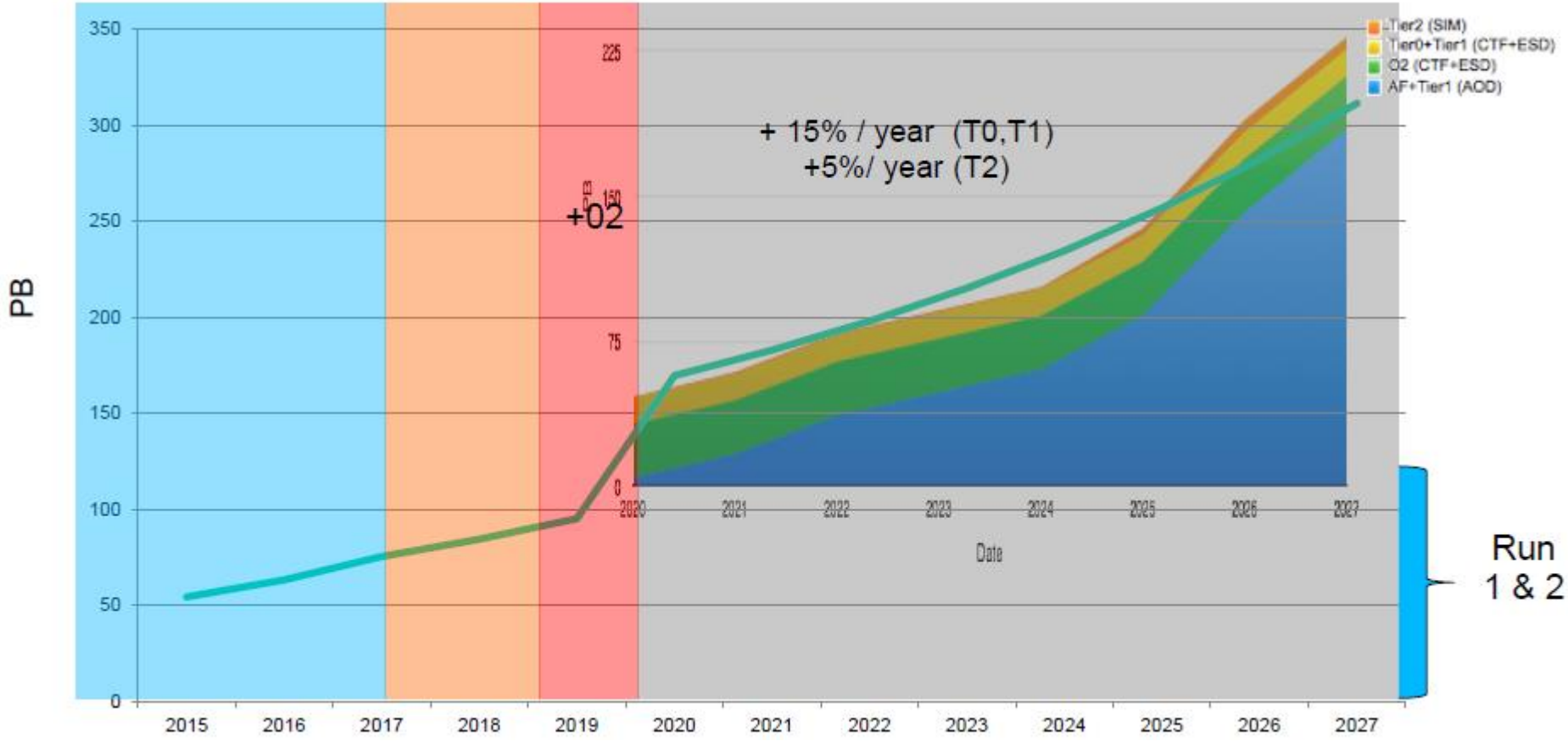


15% growth: annually compounded rate from 2018 along LS2

Table of the Russian sites

			cores	HEPSpec06	CE	VOBOX (OS)	WN (OS)	EPv6 and LHCONE	SE
1	JINR	1200	1000	12000	ARC	7	7	yes	Centos 7
2	~~NRC KI~~	~~316~~	~~408~~	~~4488~~	~~CREAM~~	~~6~~	-	yes	
3	IHEP	297	305	2631	ARC	6	7	yes	
4	ITEP	180	300	2700	ARC	6	7	yes	
5	PNPI	168	240	2640	CREAM	6	7	yes	
6	INR RAS	113	69	641	ARC	7	7	yes	
7	SPbSU	158	392	3696	ARC	7	7	yes	Centos 7
8	SARFTI	210	740	7466	ARC	7	7	yes	

Data volume in Run3



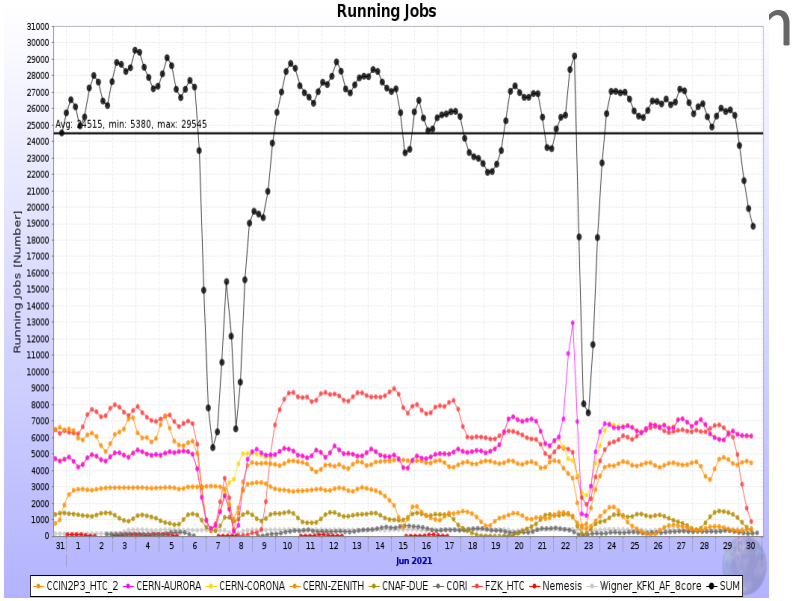
© Predrag Buncic "O^2 Alice Computing update"

Upgrades of the Grid - use of JAliEn

- Central (JCentral) JAliEn services are in operation since a while
- Sites are gradually being upgrade to JALiEn CE
  - CE + MonALISA are the only services needed on the VO-box
- Policy - all large sites and sites offering 8-core queues
  - Assures a continuous Grid operation with zero disruption to processing and especially analysis

Upgrades of the Grid - use of JAliEn (2)

- About ¼ of CPU resources are accessible through JAliEn
- Fast updates and fixes - typically 1 week release schedule
  - Current version 1.3.6
- Site startup scripts are



Site	Cores	Version	Partition
CERN-Aurora	1	1.3.6	
CERN-Corona	1	1.3.5	
CERN::Nemesis	8	1.3.6	multicore_8
CERN-Zenith	1	1.3.6	
CCIN2P3_HTC_2	1	1.3.6	
CNAF-DUE	8	1.3.6	multicore_8
FZK_HTC	1	1.3.5	
LBL::Cori	8++	1.3.4	multicore_8
Wigner_KFKI_AF_8core	8	1.3.6	multicore_8