

# 総合力の国際的比較について

HPCI計画推進委員会（第37回）

ポスト「京」に係るシステム検討ワーキンググループ（平成30年度第2回）

合同会議 資料

2018年9月4日

理化学研究所計算科学研究センター

# Hyperion Research社調査報告抜粋



	Post-K	Summit (OLCF4)	Sierra (ATS-2)	NERSC-9	Crossroads (ATS-3)	A21	A22	EU Pre-Exascale #1	EU Pre-Exascale #2	Sunway 2020	Sugon Exascale	NUDT 2020
<b>Overview</b>	100 time sustain performance of K in some applications	DOE CORAL	DOE CORAL	APEX 2020	APEX 2020 Replacement for Trinity	1st US Exascale System (Plus Up of A18 Option, and outside Coral-2 RFP)	Possible Argonne 2nd system (Not required under Coral-2 RFP)	EU Indigenous Pre-exascale systems	EU Indigenous Pre-exascale systems	Sunway Exascale (if selected)	Sugons Exascale (if selected)	TianHe-3 Prototype Follow-on
<b>Prime Developer /Industry Partner</b>	Riken/Fujitsu	IBM, NVIDIA, Mellanox	IBM, NVIDIA, Mellanox	TBD: Likely Cray	TBD : Likely Cray	Intel/Cray	?	ATOS	ATOS	NRCPC	Sugon/AMD	?
<b>Organization</b>	Japanese Ministry of Education, Culture, Sports, Science and Technology (MEXT).	ORNL	LLNL/NNSA	National Energy Research Scientific Computing Center, Lawrence Berkeley National Laboratory, Berkeley, CA	Los Alamos National Laboratory, Los Alamos, NM.	DOE/ARNL	ARNL	EuroHPC	EuroHPC	Sunway 2020	?	NUDT 2020
<b>Country</b>	Japan	USA	USA	USA	USA	USA	USA	France	Germany	China	China	China
<b>Planned Delivery Date/ Estimated</b>	2020	2018, 2Q	2018, 2Q	2020, 4Q	2020, 4Q	2021	2022	2021-2022	2021-2022	2020, 4Q (could slip 1-1.5 years)	2020, 4Q (could slip 1-1.5 years)	2020, 4Q (could slip 1-1.5 years)
<b>Early Operation</b>	2020, Q2	2018	2018	2021	2022	2022	2023	2021	2022	Delivery plus 12-18 months	Delivery plus 12-18 months	Delivery plus 12-18 months
<b>Linpack/Peak Performance Ratio</b>	85+%	65%	59%	50-60% (est.)	50-60% (est.)	70-80% (est.)	60-70%	60-70%	60-70%	60-70% (est.)	60-70% (est.)	70-80% (est.)
<b>New Ease-of-use Features Planned</b>	5	5	5	5	5	2	4	2	2	2	2	2
<b>Initial writing/porting of new codes on new computers</b>	5	4	4	4	4	2	4	2	2	2-3	2	2
<b>Ease-of-use for existing running codes (porting/certification)</b>	5	4	5	4	5	3-4	4	2	2	3	2	2-3
<b>Investments (or technologies) planned to improve ease-of-use</b>	5	5	5	5	5	5	4	2	2	2-3	2-3	2
<b>Ability to Run Leadership Class Problems</b>	5	4	4	4	4	3-4	4	3	3	2	2-3	2

1. Very difficult to use: the system employs immature technology, such as a novel architecture or CPU that requires existing applications to be fundamentally re-conceived and rewritten, and the system also requires users to learn how to use a new or immature programming language and software tools.
2. Fairly difficult to use: the system employs immature technology, such as a novel architecture or CPU, along with a heterogeneous mix of processing elements, only some of which take advantage of standard, proven programming environments and other standard software tools.
3. Moderately difficult to use: the system employs evolutionary technology, along with a heterogeneous mix of processing elements, only some of which take advantage of standard programming environments and other standard software tools
4. Fairly easy to use: the system employs evolutionary technology, along with a heterogeneous mix of processing elements, all of which take advantage of standard programming environments and other standard software tools.
5. Very easy to use: the system employs evolutionary technology, overwhelmingly uses a long-standing CPU, all of which and takes advantage of standard programming environments and other standard software tools.