

How can we reach the exascale? - An approach with sustaining technologies -

Toshiyuki Shimizu

Fujitsu Limited
June 17th, 2013

Fujitsu's Mission and Portfolio

Provides HPC solution for every aspect

Petascale Supercomputer

Fujitsu developed all key components
SPARC chips, Tofu interconnect,
and software stacks



K computer
Developed with RIKEN



**PRIMEHPC
FX10**

x86 Clusters by PRIMERGY

Fujitsu supports latest standard technologies
x86 CPU, MIC, and GPGPU etc.



**PRIMERGY
CX400**

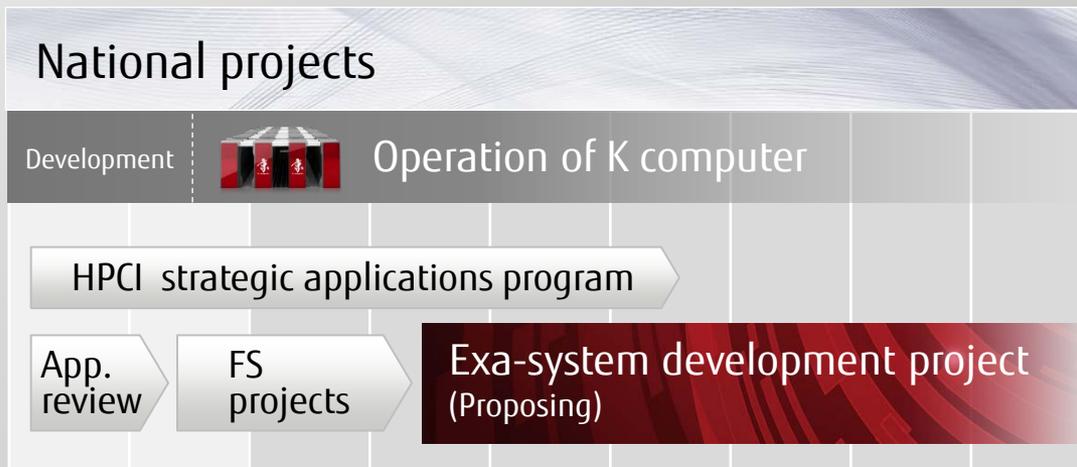
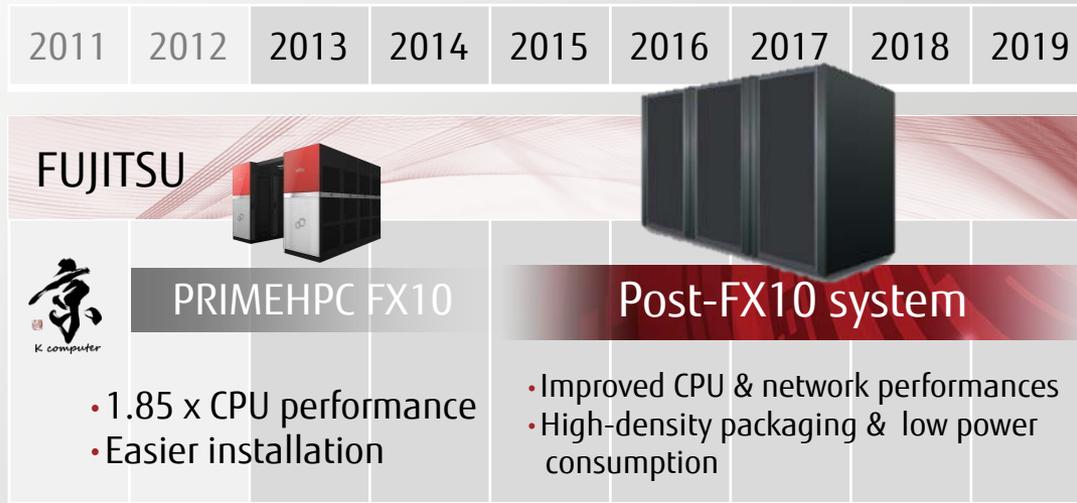


**BX900/BX400
RX200/RX900**

- Comprehensive single system image HPC environment
- SPARC64 CPUs, x86 platforms, and software stacks
- Higher performance with environmental friendliness, usability, and reliability

Road to Exascale Computing

Product roadmap and researches



■ K computer and PRIMEHPC FX10 in operation

- Many applications running and being developed for science and industries

■ Post-FX10 system under development

- CPU and interconnect will inherit K computer architectural concept

■ Effort in R&D for future exascale systems

- Higher performance and lower power consumption technologies for HW and SW (CPU, interconnect, and software stacks, etc.)
- Proactive participation in national projects

Target architecture

Applications to solve social and scientific challenges

Highly efficient multi-core CPU

Highly scalable interconnect

Inherits K computer architecture

Accompanies de facto standards

Power saving

Revolutions by co-design

Fruits of K computer

Applications

High performance & reliable CPU

System software

Highly scalable interconnect

Storage system

- State-of-the-art architecture extendable to future technology evolutions
 - Inherits the advantages of K computer
 - Interchangeable with technologies of commodity systems
- Co-design architecture, system software, and a diversity of applications



$10^{16} \times 1000$

An approach with sustaining technologies



FUJITSU

shaping tomorrow with you