

Oakforest-PACS

Overview

We decided to introduce a new supercomputer system “Oakforest-PACS” (aka. Post T2K system) with **25 PFLOPS** peak performance. We will start its full operation on December 1st, 2016. The Oakforest-PACS system will be the fastest supercomputer system in Japan at that time. This system will be installed at the Kashiwa Research Complex II building in the Kashiwa-no-Ha (Oakleaf) campus, the University of Tokyo.

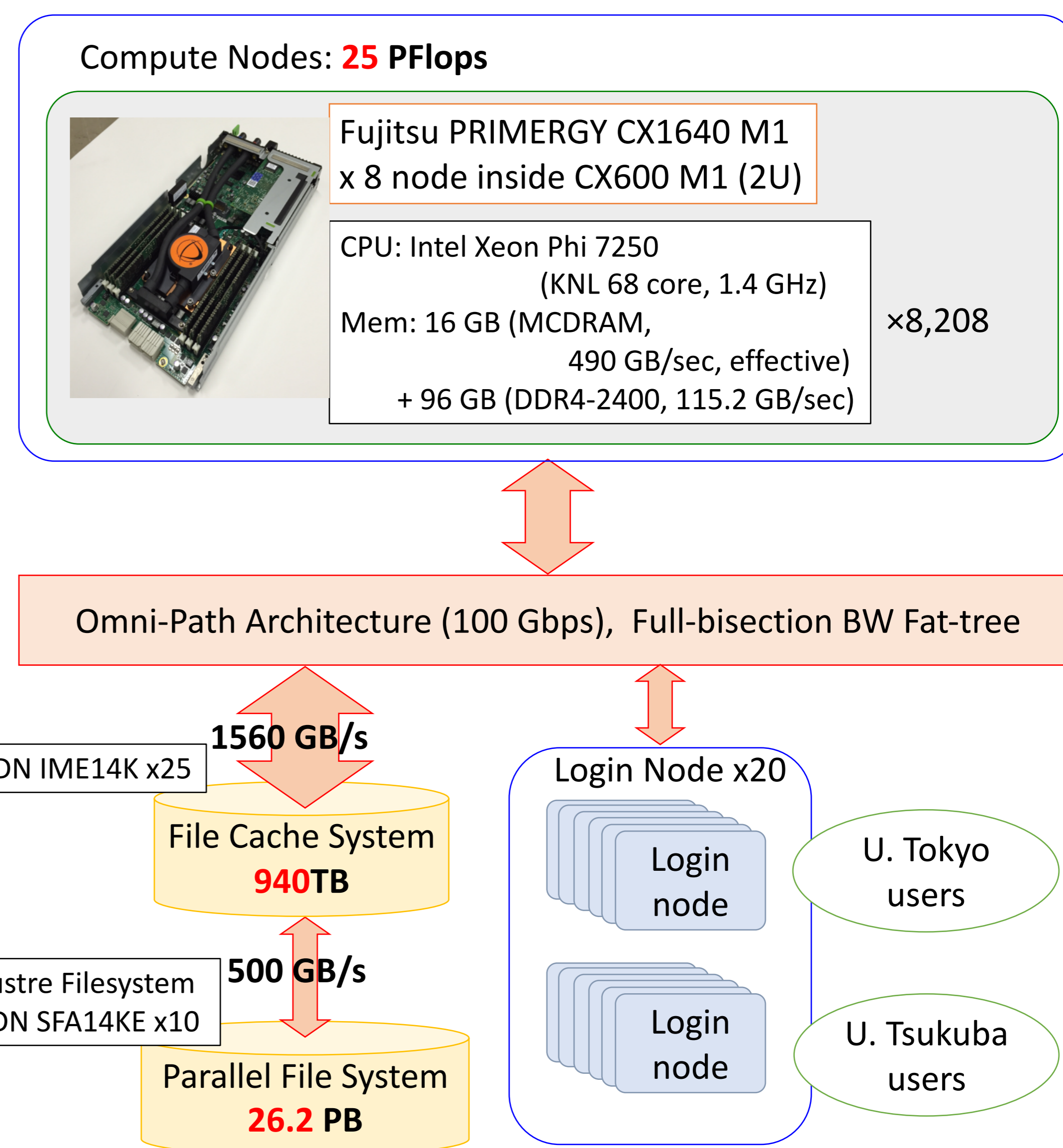
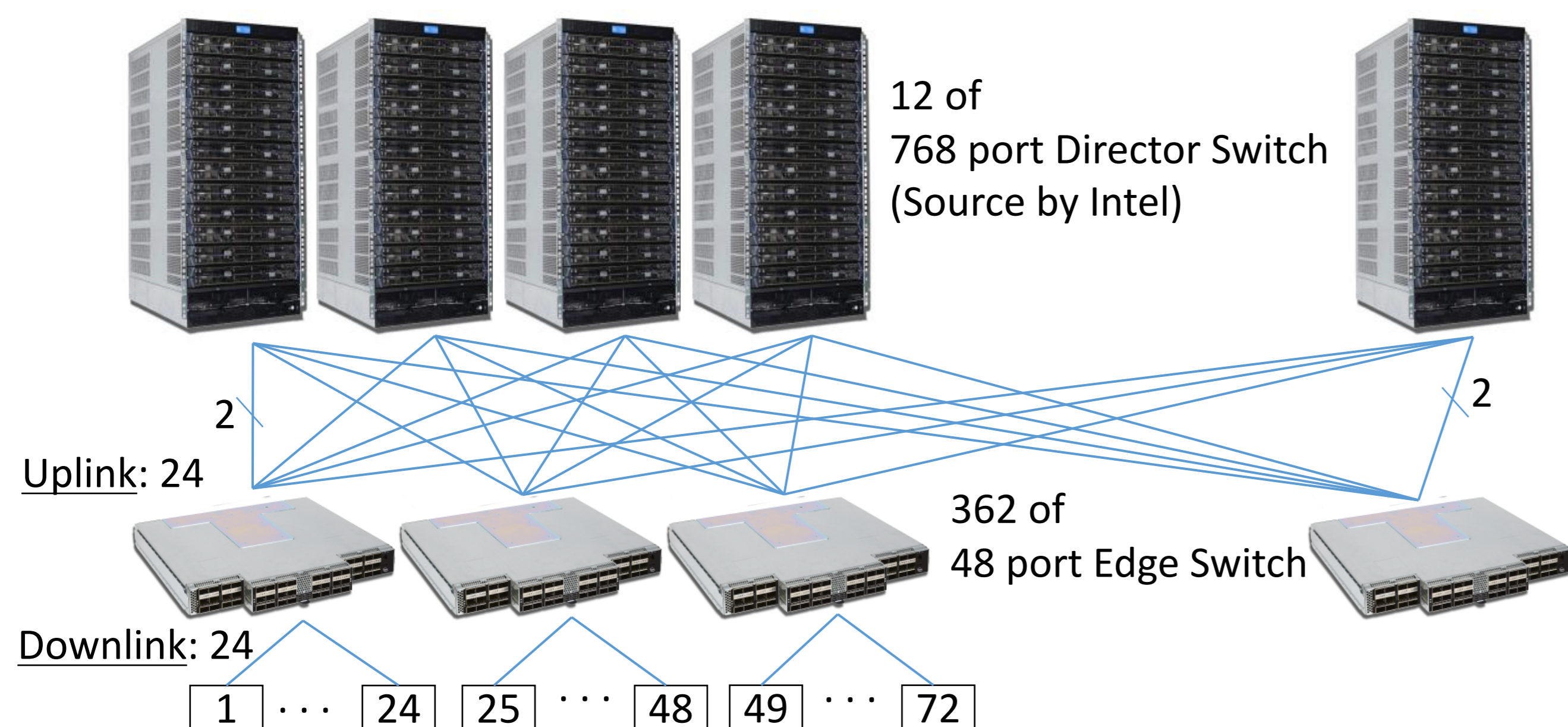
The Oakforest-PACS system has 8,208 compute nodes, each of which consists of next-generation Intel Xeon Phi processor (code name: Knights Landing, and self-bootable), and Intel Omni-Path Architecture as a high-performance interconnect, which is a brand-new fabric developed by Intel. This is the first large-scale system with such a processor in Japan. The system is integrated by Fujitsu and its PRIMERGY server is employed as each of compute node. Additionally, the system employs the shared files system (capacity: 26 PB), and the fast file cache system (940 TB), both of which are provided by DataDirect Network (DDN).

Peak performance of the Oakforest-PACS is 25 PFLOPS and the total memory capacity is more than 900 TB. All compute nodes and servers of file systems are connected by fat-tree topology based on Intel OPA, which provides full bisection bandwidth. Therefore, flexible and efficient utilization and operation of compute nodes and file systems is available. Moreover, the file cache system is equipped with SSD's and it is suitable for such applications that require higher file I/O performance.

Research & Education

The Oakforest-PACS will be offered to researchers in Japan and their international collaborators through various types of programs operated by HPCI, by MEXT's Joint Usage/Research Centers, and by each of us under original supercomputer resource sharing programs. It is expected to contribute to dramatic development of new frontiers of various field of studies. The Oakforest-PACS will be also utilized for education and training of students and young researchers. We will continue to make further social contributions through operations of the Oakforest-PACS.

System Configuration



Total peak performance	25 PFLOPS		
Total number of compute nodes	8,208		
Power consumption	4.2 MW (including cooling)		
# of racks	102		
Cooling system	Compute Node	Type	Warm-water cooling Direct cooling (CPU) Rear door cooling (except CPU)
		Facility	Cooling tower & Chiller
Others		Type	Air cooling
		Facility	PAC