

# Track on Division of High Performance Computing System

Taisuke Boku, Division Leader



# Purpose and Organization

- Performing the research on high performance computing system such as system architecture (processor, network, etc.), system software and methodology in collaboration with application researchers in CCS
- Organization (faculty)
  - HPC Architecture Research Group
    - Taisuke Boku (Prof.)
    - Daisuke Takahashi (Assoc. Prof.)
  - Grid Research Group
    - Mitsuhsa Sato (Prof.)
    - Osamu Tatebe (Assoc. Prof.)



# Education

- 4 professors are operating together a collaborative laboratory named “High Performance Computing System Lab.” in Department of Computer Science, Graduate School of Systems and Information Engineering
- Students
  - Doctoral Course: 5
  - Master Course: 7
  - Undergraduate: 4



# Research Activities of HPCS Division

- HPC System Architecture
  - HPC processor architecture and memory system
  - Large scale parallel processing network
  - Low power and high performance computing system
  - Large scale cluster computing
- Software
  - OpenMP compiler (Omni OpenMP compiler)
  - New language model for large scale parallel processing
  - High performance and scalable math. Library (FFT, orthogonalization, etc.)
- HPC Grid
  - Grid RPC (OmniRPC)
  - Data Grid on distributed file system (Gfarm)
  - Grid interoperability



# Today's talks

- Low power & high performance commodity network for large scale clusters (T. Boku)
- Gfarm: distributed file system for Data Grid (O. Tatebe)
- FFT-E & HPC math-library (D. Takahashi)
- Interoperable Grid computing (Y. Nakajima, doctoral student)
- Power-aware computing (Y. Hotta, doctoral student)

