



Working with SAP Silicon Valley  
Lab (on Stanford Univ land)



SNU Lab Venture becomes  
SAP Korea lab in Nov 2006

# 차상균 교수 연구실

*A Global Engineering Lab !*



Prof. Cha & lab members  
in Swiss Alps

**Innovation and Passion are  
Foundations of Our Lab !**

<http://kdb.snu.ac.kr/chask>

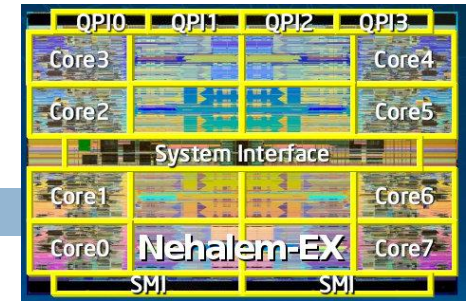


# Goal: Academy of Global Engineers

- Emphasis on solving “real” problems with “future” impact
  - Problem formulation from experience of software systems development
  - State-of-art technology updates from Silicon Valley
  - Leverage SAP’s global R&D network thru SAP Korea labs
    - SAP is 50,000-employee global software company with R&D labs in Germany, Silicon Valley, Korea, Israel, China, India, ...
- Value on Publishing “software systems” to the real world
  - More difficult but rewarding than only publishing a paper
- SAP Ph.D. research program to be available (contact Prof Cha)
  - Financial support & access to research issues of SAP-internal project
  - Early test of the state-of-art HW provided by SAP partners such as Intel (e.g., 32-core Intel Nehalem EX servers)



# Challenging SW Research is driven by HW innovations

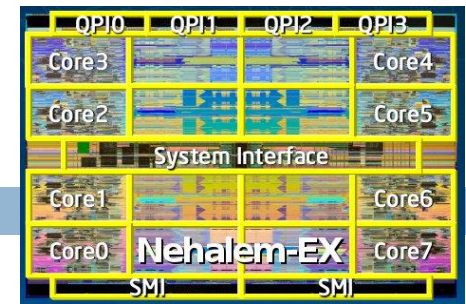


## “Petabyte-scale main-memory database”

- Multi-terabyte many-core-parallel memory DB in a blade
  - 2TB DRAM & 4X8 cores (in 2009) → 20 TB & 4X80 cores (by 2015)
  - enabled by Intel Nehalem EX 8-core proc and Samsung’s 32GB memory
- Cloud-scale (Google-like) data parallelism over 1K blades
  - Fast response to on-line analytical business intelligence queries
  - Basis of building SaaS (software As A Service) like “personal accounting and tax service” or “automatic video indexing service” (this application itself is yet another challenge!)



# Challenging SW Research is driven by HW innovations



## “Petabyte-scale main-memory database”

- Research topic examples:
  - Exploit hardware-level (multi-cores with shared L2 cache) and cloud-level parallelism for real-time processing
  - Data partitioning over column and row storage table types
  - Join query processing over a mixture of row and column storage tables
  
- First Thing to Do in Our Labs:
  - Read “Effective C++ Programming” Vols I & II  
(Salary of highly skilled C++ programmers can be ten times that of the average Java programmers in the world)
  - Learn “How to do elevator speech”, “Passion”, and others...



# Our Lab People

## □ 차상균 교수

- 서울대학교 전기컴퓨터공학부 교수 (1992~현재)
- 서울대학교 자동화시스템공동연구소장 역임, 현 지식재산관리본부장
- Stanford 대학교 전산학과 방문 교수 (2001~2002)
- Silicon Valley 실험실 벤처 Transact In Memory, Inc. 창업 (2000), SAP와 전략적 M&A 이끌어냄 (2005), SAP 한국 연구소 설립
- VLDB Journal Editor (2009~2014)
- Stanford 대학교 컴퓨터공학 박사(1991)
- 서울대학교 제어계측공학 석사(1982), 전기공학 학사(1980)

## □ NHN 권혁일 이사: 네이버 창업자 5인중 1인

## □ 김기홍 박사 등 약 20명의 실험실 출신이 SAP 한국 연구소 근무

## □ 이성직: 코스닥 상장 기업 창업 멤버

## □ Others: 삼성전자 등 대기업 또는 벤처 기업 근무

