Czech Technical University in Prague Faculty of Nuclear Sciences and Physical Engineering

presentation given by

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Outline

- **Locating Czech Technical University in Prague**
- Motivation for cooperation with CA and IBM
- **Education related to mainframe technology**
- Guiding student individual projects on mainframe
- Outlook

Locating CTU in Prague

Czech Technical University in Prague

the oldest (>300y) and largest (>24k) state technical university in Czech Republic

Prague has several other large state universities in other domains (Charles University, University of Economics, University of Agriculture, Institute of Chemical Technology etc.)

Research and Education

research university:

educational activities together with research activities

education:

bachelor, master and doctoral degrees

Cooperation

unique facilities:

nuclear reactor

tokamak

industrial cooperation:

Toyota, Bosch, Siemens, Honeywell, GE, Rockwell, ABB, Skoda, .., CA and IBM.

Faculty of Nuclear Sciences and Physical Engineering

Interdisciplinary character of education (Applications in Natural Sciences):

Mathematical Engineering, Engineering Informatics, Physical Engineering, Nuclear Engineering, Nuclear Chemistry

Interdisciplinary character of research:

Mathematical Physics Mathematical Modeling of Processes in High Tech and Environment Experimental Nuclear Physics Physics and Technology of Nuclear Fusion Nuclear Reactor Physics Material and Solid State Physics

Computer Science and interdisciplinary research:

scientific computing high-performance computing parallel computational algorithms

- requirements for highly reliable computational resources -> interest in MF

Motivation for cooperation with CA and IBM

- Enriching Engineering Informatics study program
- Challenge of inventing so far unknown technology into curriculum
- Finding new optional employers for people graduated from CTU
- Inventing new topics for bachelor, diploma and doctoral theses

Education related to mainframe technology

- Aim of education is to explain concepts and fundamental ideas of z/OS.
- Preparation for detailed company training, e.g. at CA
- **Motivation** of students for further study of z/OS.
- Classes are organized with the initial help of CA and IBM experts.
- Visits and presentations by CA and IBM for students to show more advanced features of mainframes.
- We have established internships for students at CA.

Education related to mainframe technology

Courses offered to students

Introduction to the Mainframe

- What is a mainframe and its role on IT today
- Differences between mainframe and Unix or Windows
- Adress spaces, data sets, ISPF, JCL, programming C/C++, REXX
- Hardware of zSerie, parallel sysplex, GDPS with CA

Administration of the Mainframe

- History of mainframe
- Databases
- Virtualisation (z/VM)
- Transactions (CICS)
- + some other topics

Assembler for Mainframe

Programming in assembler under MF

Guiding student individual projects on MF

Students of Computer Science at CTU in Prague, Faculty of Nuclear Sciences and Physical Engineering work on the following **individual projects**:

- bachelor project
- research project (master study)
- diploma project (master study)

Guiding student individual projects on MF

Understanding assembler code

- Most of the subsystems and applications on mainframe are written in assembler
- It is much more difficult to understand in comparison with C/C++, Java or C#
- We use mathematical theory of graphs for visualization, better understanding and partitioning assembler code into independent modules

Guiding student individual projects on MF

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Outlook

- increasing # of students in MF
- better cooperation with other faculties of CTU
- continuing in bachelor and diploma projects in MF
- continuing in established internships at CA
- establish internships in IBM
- cooperation with other universities in Europe

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