

National Academy of Sciences of Belarus United Institute of Informatics Problems



THE MAIN OBJECTIVES

- Fundamental and applied research in the fields of information technology, computer science, applied mathematics, computer aided design and some other attached fields.

- Cooperating with industrial research centers and enterprises in solving technical problems faced by the production sector in the field of computer aided design, computer aided engineering, new products testing, software and hardware development.

- Participating in formulation of national policies in the above mentioned fields in Belarus and in the long term R&D planning.

- Specialist education and training of high-qualified research staff capable to tackle the scientific and technological problems.

The directions of research:

- Computer aided design (CAD/CAM/CAE)
- Processing and recognition of signals, images and speech
- Operations research and discrete optimization
- Decision making support systems
- Bio and medical informatics, ergonomics
- Geoinformation systems
- Supercomputer systems
- Computer networks and telematics
- Information protection
- Input-output of videoinformation

International Cooperation

Participation in international research programs:

- . INTAS
- **COPERNICUS**
- STASIS
- UNESCO
- NATO
- ISTC (International Science and Technology Center)
- FP6, FP7

National branches of international Associations:

- IEE
- IEEE
- EURO
- IAPR

Individual membership in international organizations:

- Institute of Electrical and Electronic Engineers
- Institute of Electrical Engineers
- American Mathematical Society
- International Association of Pattern Recognition
- New-York Academy of Sciences
- International Academy of Information Technology
- European Association on Speech Communication
- INTERNET Society

Interpretation of remote sensing images and digital maps and their applications

Ior creation of digital mapsIorecastingidentification of hea anomaly (forest and peat bog fire)Tools for analysis of remote sensing imagesObject-oriented database of digital maps and imagesTechnologies of classification of forest by wood age and species. Forest status monitoringTechnologies of hazard (extreme) situation ModelingTools for digital maps updatingTools for visualization andTools for transport navigation	Tools for creation of		Technologies for wind transport of pollutants	Technologies for
Tools for analysis of remote sensing imagesObject-oriented database of digital maps and imagesTechnologies of classification of forest by wood age and species. 	digital maps		Torecasting	identification of heat anomaly (forest and peat bog fire)
Tools monitoring Tools Tools for digital maps Tools for updating Tools for	Tools for analysis of remote sensing images	Object-oriented database of digital maps and images	Technologies of classification of forest by wood age and species. Forest status	Technologies of hazard (extreme) situation Modeling
for digital maps updating Tools for visualization and transport navigation	Tools		monitoring	Tools
interpretation of digital maps and	for digital maps updating		Tools for visualization and interpretation of digital maps and	for creation of transport navigation systems



Super-servers "SKIF K-1000" 2.5 Tflop



Development and production of families of high-performance parallel computers (supercomputers) and supercomputer-based application systems

(Joint Belarusian & Russian Program)

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The family of personal clusters "SKIF-TRIADA"



Personal clusters "SKIF-TRIADA" have peak performance as high as 300-400 GFlops, cluster architecture, work under OC Linux and Windows Computer Cluster Server 2003, system network MPI as a basis for parallel programming, the program languages C/C++, Fortran.

Personal clusters "SKIF-TRIADA" are designed for complicated scientific and engineering calculations and modeling, can be used as robust Web-servers, mail -servers, databases-servers and others. Personal clusters "SKIF-TRIADA" take the gap between regular personal computer and supercomputer; give a possibility to use supercomputer technologies independently in organizations, subdivisions, and also at working desk of designer for personal calculating.

Two samples of personal clusters are developed as "tower" and 'stand"





Medical information systems and complexes



The institute develops the contemporary information technologies and soft-hardware decisions for medical institutions to increase the effectiveness and economy of diagnostic and treatment process. The developments cover all levels of activity of medical institutions, starting from individual working place of the doctor and up to the system for a whole region.





Electronic voting system

The project of electronic polling station with direct network announcement of current and final results



The developer: the senior resourcher of the UIIP NAS of Belarus Lipen V. tel.: +(375 17) 284-20-78; e-mail: <u>lipen@bas-net.by</u> The container of reusable electronic voting cards (EVC)

Future Conferences

- The 2nd International Conference on Advanced Information and Telemedicine Technologies for Health, October 1-3, 2008, Minsk, Belarus
- The 2nd International Conference «Supercomputer systems and applications» (SSA'2008), October 15-17, 2008, Minsk, Belarus
- Fifth International Conference «Information technologies in industry» (ITI'2008), October 21-24, 2008, Minsk, Belarus
- VII International Conference «Informatization development and systems of engineering information», November, 2008, Minsk, Belarus



Post address: United Institute of Informatics ProblemsSurganova Str. 6, 220012 Minsk, BelarusPhone:+(375 17) 284 21 71FAX:+(375 17) 231 84 03e-mail:cic@newman.bas-net.by