



Experience in standardization of programming languages for mini- and microcomputers

Sergei Prokhorov
S.I. Vavilov Institute for the History
of Science and Technology
of Russian Academy of Sciences



In the second half of the 1970s, most of the series of Soviet computers were discontinued. They were gradually replaced by machines - clones of foreign models IBM 360, Hewlett Packard HP-2000, DEC PDP-11, Intel 8080.

Many different types of incompatible computers made it difficult to port programs when switching from one type of machine to another.

This problem attracted the attention of the simulators and control systems developers, who turned to the USSR State Committee for Science and Technology (SCST) with an initiative to unify the software for minicomputers and microcomputers.



424-344

№ 1

ГОСУДАРСТВЕННЫЙ КОМИТЕТ СССР по НАУКЕ и ТЕХНИКЕ

ПОСТАНОВЛЕНИЕ

от 4 октября 1980 г. № 424

Об организации Временной научно-технической комиссии для разработки предложений по унификации языков программирования для мини- и микро-ЭВМ

Государственный комитет СССР по науке и технике ПОСТАНОВЛЯЕТ:

1. Организовать Временную научно-техническую комиссию для разработки предложений по унификации языков программирования для мини- и микро-ЭВМ в следующем составе:

председатель Комиссии

МАЛАШИН И.И.

— доктор технических наук, директор Отделения вычислительной техники и радиоэлектроники Института атомной энергии им. И.В. Курчатова

ученый секретарь Комиссии

ПРОХОРОВ С.И.

Вычислительный центр
14. 10 80

кандидат физико-математических наук, младший научный сотрудник Вычислительного центра Академии наук СССР

On October 4, 1980, the State Committee for Science and Technology issued a decree "On the organization of the Temporary Scientific and Technical Commission for the development of proposals for the unification of programming languages for mini- and microcomputers.



Admiral Ivan Malashinin, Computing and Radioelectronics Division director of the Institute of Atomic Energy, was appointed as the Commission's head. Malashinin was the initiator of creating and using simulators for training personnel of power plants of nuclear submarines, where computers were actively used.



He understood both the complexities of incorporating new computer technology into simulators and the problems that could arise if simulators did not work properly.



The problem of software portability has actually existed since the 1970s. On a popular domestic computer BESM-4, there were four translators from Algol-60 and three translators from Fortran. A similar situation was with other computers. Some of them did not fully support the original programming language. So the problem of portability existed even when using different translators on the same computer.

But by the time the State Committee for Science and Technology Resolution was published, a new problem arose. On the clones of foreign computers, there were adapted versions of translators from foreign companies. They were also incompatible with each other and with translators for domestic computers.



Computer manufacturers had concerns that after adopting the State Standard (GOST), a conflict situation could arise when the existing versions of programming languages implemented on common computer models would be inconsistent with the new GOSTs. Since almost all GOSTs of the USSR contained a strong warning that “**non-compliance with the standard is punishable by law**” up to criminal prosecution, this caused an ambiguous attitude of computer and software manufacturers to the prospect of introducing GOSTs into programming languages.



The information that international standards for programming languages are open standards was received with enthusiasm, primarily by computer manufacturers. Frankly speaking, the meaning of work on the standardization of programming languages has been lost for the computer manufacturers. In fact, the adoption of "open standards" meant that they would have the status of reference and information recommendations. These can be referenced, but they are not binding. If it is possible not to apply the standard, then what is the point of taking part in standardization? For manufacturers of clones of Western computers, compatibility with foreign counterparts was much more important than GOST compliance.



The Temporary Scientific and Technical Commission has completed its work by submitting a list of languages recommended for standardization. The commission also presented recommendations on the development of tools to support programming for microcomputers. After the final report, the commission completed its work. A much more important result of the commission's activities was a "side effect". During the temporary commission activity, it became clear that it was advisable to create a permanent scientific and technical commission on languages and computer programming systems. Such a commission was needed to carry out examinations, develop plans for software development, and exchange scientific and technical information.



It was the beginning of the 1980s. An embargo was imposed on the supply to the USSR of highly productive computers and personal computers. It was the height of the Cold War. The USSR was behind the "Iron Curtain", scientific contacts with Western countries were minimized. In the USSR, strict censorship reigned, which even extended to the publication of scientific literature. As a result, very few scientific journals were published. It was often almost impossible to publish even the Proceedings of a Scientific Conference. In such conditions, conferences and meetings played an important channel for the exchange of scientific information.

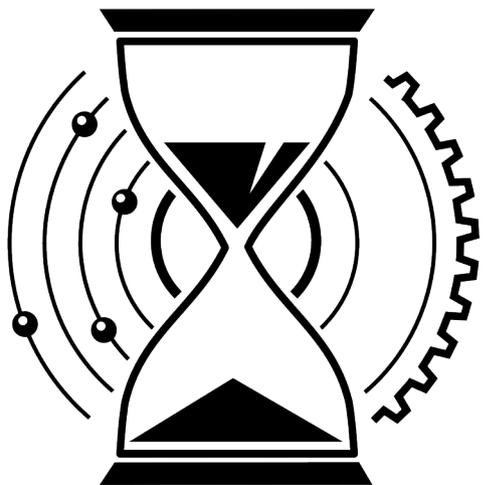
ПОЯСНИТЕЛЬНАЯ ЗАПИСКА
к результатам работы ВП РГРЯП по экспериментальной
аттестации трансляторов

В соответствии с решением 2-го заседания РГ РЯП была создана временная группа в составе В.Ш. Кауфмана, А.С.Клещева, А.Н.Терехова для разработки рабочей методики аттестации трансляторов. По предложению НИИ ЭВМ (г.Минск) экспериментальной аттестации был подвергнут транслятор Фортран 3Е и система отладки программ на Фортране, работающая в составе СРВ ОС ЕС.

Результаты работы были доложены на заседании РГРЯП в г.Минске в январе 1982 года.

One of the important consequences of the commission's activities was creating a permanent Scientific and Technical Commission on Programming Languages and Systems (STC PLS).

STC PLS was an important scientific forum where one could get information about the latest developments in system programming. One of the significant results of the commission's activities was the verification of compliance with international standards of Fortran translators for computers of the EU series.



ИИЕТ РАН

THANK YOU !!



Российская Академия Наук