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Bezeichnung der Erfindung: Communications switching system
Title of invention:
Titre de l'invention :

Klassifikation / Classification / Classement : H04Q 11/04

ENTSCHEIDUNG / DECISION

vom / of / du 23 August 1990

Anmelder / Applicant / Demandeur : Redcom Laboratories, Inc.

Patentinhaber / Proprietor of the patent /
Titulaire du brevet :

Einsprechender / Opponent / Opposant :

Stichwort / Headword / Référence :

EPÜ / EPC / CBE Article 56

Schlagwort / Keyword / Mot clé : "Inventive step (denied)"

Leitsatz / Headnote / Sommaire

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Case Number : T 214/88 - 3.5.1

D E C I S I O N
of the Technical Board of Appeal 3.5.1
of 23 August 1990

Appellant : Redcom Laboratories, Inc.
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Decision under appeal : Decision of Examining Division 059 dated 18 December 1987 refusing European patent application No. 84 100 264.5 pursuant to Article 97(1) EPC

Composition of the Board :

Chairman : P.K.J. van den Berg
Members : W. Riewald
J. Stephens-Ofner

Summary of Facts and Submissions

I. European patent application No. 84 100 264.5 (publication No. 0 115 786), claiming priority from an application in the United States of 31 January 1983, was filed on 12 January 1984.

The application was refused by a decision of the Examining Division dated 18 December 1987.

The decision was based on Claims 1 to 10 filed on 05.06.86 and, by way of an auxiliary request, on Claim 1 filed at the oral proceedings before the Examining Division on 30.10.87.

The reason given for the refusal was that the claimed subject-matter lacked an inventive step having regard to the prior art known from the following documents:

D1:- EP-A-0 019 921 (= US-A-4 228 536 cited in the present application);

D2:- ELECTRO/81 CONFERENCE RECORD, Sessions Presented at Electro/81, New York, 7th to 9th April 1981, paper 3/3, pages 1 to 6.

D4:- INTERNATIONAL CONFERENCE ON COMMUNICATIONS, Toronto, Canada, 4th to 7th June 1978, Vol. 2, paper 32.2, pages 32.2.1 to 32.2.5, in particular figure 1.

D5:- GTE AUTOMATIC ELECTRIC WORLD-WIDE COMMUNICATIONS JOURNAL, Vol. 20, No. 1, 1982, pages 21 to 27.

II. The Applicant lodged a Notice of Appeal on 18 February 1988 and paid the appeal fee on the same day. A Statement of Grounds of Appeal was filed on 15 April 1988 requesting to base the proceedings on a new Claim 1 as set forth in the Grounds and contesting the reasoning of the Examining Division as having made "far too much" of the prior art.

In a communication dated 8 August 1989, the Rapporteur considered that also the newly filed Claim 1 of the application did not specify more details than the prior art and voiced doubts that any other differences over the prior art disclosed in the application comprised an inventive step.

With letter of 18 May 1990, the Appellant filed ten sets of claims, viz. besides an unaltered set of Claims 1 to 10 as a main request, nine sets of claims as auxiliary requests, and requested oral proceedings.

In the oral proceedings held on 23 August 1990, the Appellant withdrew the auxiliary requests and incorporated some amendments in Claim 1 of the main request.

He requested that the decision under appeal be set aside and that a patent be granted on the basis of the following claims:

Claim 1 as filed in oral proceedings with the following amendments:

"characterised in that" to be replaced by "wherein",
deletion of references to Table A and Table B,
Claims 2-10 filed 18.05.90 (then as a main request).

III. The independent Claim 1 reads as follows:

"A system for control of a telephone switching system, which makes connections between lines or trunks by carrying out switching events at the ports of said switching system which are connected to said lines and trunks, as a switching peripheral (14), with a general purpose host computer (12) which is programmable by a high level programming language, wherein said host computer has means for generating digital signal commands having a predetermined high level language structure and corresponding to a plurality of different ones of said switching events and for receiving digital signal responses also having said predetermined high level language structure and being related to the execution of said switching events at said ports,
interface means (16) for linking said host computer and said switching peripheral (14), processing and scheduling means (32, 34, 36, 40) responsive to said high level language commands for formatting said commands into low level language messages representing events to be executed at said ports and scheduling said low level language messages, port event processing means (38) responsive to said messages for executing said messages and carrying out switching events at said ports and for generating low level language response messages representing the execution of said events at said ports, and said processing means (32, 34, 36) being responsive to said response low level language messages for generating said digital signal responses for transmission in said high level language format via said interface means to said host computer."

IV. The Appellant's arguments can be summarised as follows:

Applicants have provided an improved communications switching system in which a telephone switching unit or units are provided with processors so that the switching

system can operate as a remote peripheral to a host computer. Because of these processors and their programming, the host computer may be programmed in a high level language, such as BASIC, and provide simple commands in predetermined format to the switching system processors. By control of the host computer, commands in the requisite format can be communicated over a standard data link via a link interface between the host computer and the switching system. The host computer controls the switching events which provide connections between the ports of the switching units which are connected to lines or trunks. The switching system has port event processors which receive the commands from the processors in low level telephony language to execute the switching events at the ports. The processors not only translate the high level commands into switching language but also schedule the work to be performed by the port event processors. After the telephony events are executed, messages are generated by the processors, as execution responses which are handled by these processors in reverse order and transmitted over the link to the host computer in the form of commands similar to those transmitted for control of the switching events.

These processors enable a host computer and a telephony switching system to be "married" to each other. Programmers who are not familiar with telephony switching language or operations can program the host computer using conventional high level programming languages so as to provide for special switching applications, such as answering service (Figure 2 of the application), or command and control applications (Figure 3 of the application).

Whereas it is not disputed that the document D2 suggests the combination of a telephone switching system with an adapted mini-computer for controlling the switching system,

it is submitted that the Examining Division has made "far too much" of this technical disclosure, since it lacks essential details, in particular:

- It is not disclosed in D2 how the mini-computer could be programmed. The nature or the format of the commands and the provision of responses to the computer is not given.

- There is no guideline as to the necessary processors or designs of processors.

- D2 mentions a link and software interface between the mini-computer and the switching system but does not give details how the data are handled or formatted in the interface.

Document D4 describes a hierarchical architecture of a typical large scale telephone switch with a central computer in the highest level of the hierarchy which carries out all of the call control processes within the switch. But, this central computer does not receive messages relating to a desired action to be taken as viewed from the external world, in contrast to the function of a host computer as used in the claimed system.

Likewise, D5 describes a system for administration and maintenance of a telephone switching system of a very large scale. It shows a special hardware and software interface between an existing basic switching system and an "enhancement", but the relation between these parts of the switching system is not that of a switching peripheral and a host computer in the sense of the present application.

Reasons for the Decision

1. The appeal is admissible.

2. Novelty.

A system for control of a telephone switching system with most of the features of Claim 1 is known from document D2. It makes connections between lines or trunks by means of ports for carrying out the necessary switching events (Figure 2: system input/output interfaces = ports). Port event processing means ("microprocessor based control" and "non-blocking digital information transfer") are provided for controlling the switching events at the ports.

According to page 5 of D2, right-hand column, a mini-computer may be provided for externally controlling the switching system in order to perform additional complex functions necessary in an "Improved Mobile Telephone Service" (IMTS). This mini-computer controls the call set-up in the switching system and communicates its requests to the switching system over a dedicated communication channel and via a software interface. This is, in other words, the function of a host computer controlling the switching system as a peripheral. The interface link is a "duplex serial link" which, in the context of the system controlling switching events, can only be interpreted as meaning that the host computer generates not only digital signal commands corresponding to a plurality of switching events, but also receives digital signal responses related to the execution of the switching events.

Thus, the features of the present Claim 1 not covered by the disclosure of document D2 relate to the use of a so-called "general purpose" computer and to the application of a high level language for programming and controlling it. In this context, the claim specifies that processing and scheduling means are provided which format the high level language commands into low level language messages which represent the events to be executed at the ports of the switching system, and that the processing means, likewise,

transform the low level language responses from the switching system into high level language format for transmission to the host computer.

3. Inventive Step.

3.1 It is beyond dispute that document D2 provides only the general outlines of a combination of a telephone switching system with a host computer. However, the Appellant's objection that document D2 does not disclose essential details concerning the necessary hardware and software configuration (cf. section IV above) is not overcome by the features of the present Claim 1. The distinguishing features, set out above in section 2), belong only to the generally known principles of computer technology.

Having regard to the desirability to make use of an available "general purpose" computer it is a matter of course that there will be a difference of language level between the programming of the host computer and the messages representing the events at the ports of the switching system. The high level language of the host computer and the low level language necessary for controlling the ports require of necessity formatting and scheduling means. It is also a common feature of control arrangements that a reliable control requires that response messages are sent back to the controlling unit.

It is noted that Claim 1 only specifies that interface means and processing and scheduling means are provided for carrying out these necessary functions. No further details as to the format of the commands and responses or to the design of the processor and interface means are given.

Claim 1 is not confined to a specific distribution of processor tasks to the two main components: the switching

peripheral and the host computer. As far as the programming details of the traffic control of the telephone switching system are concerned, neither any particular details of the programming of the host computer nor any guidelines as to the necessary processors or designs of the processors are subject of the claimed scope of protection.

Therefore, starting from the general outlines given in document D2 for a marriage of a telephone switching system with a host computer, Claim 1 is limited to the specification of generally known concepts of computer control without specifying details which would complement the general outlines in the sense of a particular inventive embodiment.

3.2 Thus, Claim 1 is not allowable because its subject-matter is considered not to involve an inventive step within the meaning of Article 56 EPC.

Order

For these reasons, it is decided that:

The appeal is dismissed.

The Registrar: **The Chairman:**

M. Beer **P.K.J. van den Berg**