

SPECIFICATION OF THE INVENTION

MICROTIMED DATA PROCESSING

5 Background of the invention

1. Field of the invention

The present invention relates generally to data management by means of computers, so-called computerized data processing, whether the data are scientific, commercial or administrative ones or of any other kind, and whether the computers are mainframes or various bigger or smaller computers, used individually or connected by means of all kinds of private or public networks.

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2. Description of the prior art

If one focuses attention onto the huge amount of data that has been processed and stored all over the world since computerized data processing has spread out widely during the sixties, one may consider this enormous mass of data as a particular world, the living world of computerized data. And one may consider for the purpose of the argument that the world of computerized data is globally, more or less, at least for an important part of it, a partial picture of the real physical world. And we can set forth that the dual world of computerized data is becoming to some extent a more and more complete and accurate picture of the physical world, since computers and various networks gain steadily in number and in processing and storage capacity. But there is a basic, fundamental, qualitative difference between the two

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worlds, that did not change at all since the first ages of data computerized processing. Here is the difference : any basic component an/or group of components of the real world has an explicit history and age, and gains steadily
5 in age, which results in steady changes of various kinds, eventually directly visible and measurable. On the contrary, regarding basic components and/or group of components of the dual world of computerized data, it is generally impossible to access directly to age and
10 history, although they too have obviously an implicit history, and gain steadily in age. Briefly said in other words, it is generally impossible in common data processing methods and machines to know immediately, directly and systematically at what time any given basic
15 stored data or any given meaningful stored set of data has been collected and/or processed and stored. This fundamental difference already results and will result more and more in the future in a confusing and disturbing distortion between the two worlds, as more as the dual
20 world of computerized data will tend to be a more and more complete and accurate image of the real physical world.

Therefore it is the object and the purpose of this invention to overcome this basic gap by means of a
25 decisive breakthrough regarding methods and machines for computerized data processing. Indeed, we state that thanks to the latest improvements in matter of processing speeds and storage capacities of computers it is possible nowadays to introduce systematically, explicitly, the
30 time-variable within computerized data processing techniques, what we call MICROTIMED DATA PROCESSING. The

same way that Relativity introduced systematically the time-variable in physical laws, the same way Systematically Timed Data Processing is supposed to introduce explicitly the time-variable in all
5 computerized data management processes. The expected improvements are numerous and powerful in terms of data processing control and checking, and more generally in terms of data managing.

10 Summary of the invention

In the prior art of data processing, elementary processed and/or stored data and/or meaningful sets of data consist of characters such as letters of various alphabets, digits, special signs and more generally
15 symbolic signs including ideograms of diverse languages, and/or meaningful strings of such characters, composing words, numbers etc., as character and/or sign being individually processed and/or stored as a string of binary digits according to a given code, such as for
20 example the famous American Standard Code For Information Interchange, or ASCII. Comparatively, the invention consists of introducing systematically into any computerized representation of a character or other symbolic sign and/or into any computerized representation
25 of a meaningful string of characters and/or symbolic signs, an information related to the time when the character, or the symbolic sign, or the meaningful string of characters and/or symbolic signs was collected/processed/stored, according to any adequate
30 algorithm or more generally to any adequate time-encoding

process, so as to get a microtimed representation of processed data instead of the traditional non-timed one.

According to the invention, diverse existing non-timed codes can be used as a basis of a timed representation, while for example being completed by means of a time related extension, or more generally while used as a basis of any algorithm or other time-encoding process leading to the microtimed computerized representation of any character, or symbolic sign, or meaningful string of characters and/or symbolic signs. For example the ASCII code can infer a Time-Extended ASCII, while being completed by means of a conventional additional time-encoding process using for example among other solutions a 128-based numeration for representing coded processing time as an additional multiple of 128.

Detailed description of preferred embodiments of the invention

The brief summary of the invention as written above refers to the final result achieved through any Microtimed Data Processing technique and/or machine regarding the physical computerized representation of collected/processed/stored data. We want now to describe some preferred embodiments of the invention allowing this final result to be achieved, whether in new machines and/or networks specifically designed for Microtimed Data Processing, or in traditional machines and/or networks able to emulate Microtimed Data Processing, or in particular interchange devices and/or networks allowing information interchange using either traditional non-

timed data processing or Microtimed Data Processing through private or public networks.

Regarding new machines and/or networks specifically designed for Microtimed data Processing, the change is global, concerning hardware as well as software of systems. Generally speaking, all parts of the system have to do with data representations using commonly more bytes, as including time-encoding informations, and have to handle with this richer and more complicated information, this inferring the adequate design of I/O communication ports, data, control and address buses, central memories, permanent memories, central processing units and various arithmetic and logic units and processors, I/O control units, Direct Memory Access control units etc., as well as various I/O peripheral devices. Some operations will affect the whole timed data representation, such as data transportation and storage for example, while other will include both partial traditional operations and specific new operations concerning time-encoding informations. For example, an addition of two numbers will include a traditional arithmetic addition concerning the strictly digital signification of the numbers representation, and a logical operation concerning the time informations, such as for example among other solutions selecting for the time-encoded information of the result the more ancient time-encoded information of the two processed numbers, etc. Regarding Input data, the treatment will be different whether they originate from an input peripheral device - including analog input devices - or any other source deprived from time-encoding features - in this

case Input data will be added time-encoding informations related to the processing time -, or whether they are already provided with time-encoding informations. Regarding Output data, all will include time-encoding
5 informations, which supposes adequate features for output peripheral devices specifically designed for Microtimed Data Processing, as well as a particular treatment for traditional output peripheral devices - including analog output devices - deprived of time-encoding features,
10 realized by means of a particular software and/or by means of specifically designed peripheral interface adapters, etc. Regarding all kinds of software materials, basic control instructions, internal and user operating systems, utility programs, software languages,
15 application softwares, software packages etc. will include specific features able to handle with, and take advantage of, Microtimed Data Processing. Regarding traditional machines and/or networks able to emulate Microtimed Data Processing, the changes will concern
20 essentially the software materials, such as basic control instructions, internal and user operating systems, utility programs, software languages, application softwares, software packages etc. taking advantage of the time-encoding features, but may also partially concern
25 the hardware of the systems by means of replacement or addition of some specific parts such as permanent memories, I/O control units etc. Regarding specific interchange devices and/or networks allowing information interchange using either traditional non-timed data
30 processing or Microtimed Data Processing, changes concern software materials such as data interchange codes, data

interchange protocols, handshaking protocols, network automation protocols, communication softwares etc., and also data communication equipment such as interface adapters, network interface cards, data phones etc.

- 5 While I have described various embodiments of my invention, it is to be understood that the disclosure is merely illustrative and that modifications and changes can be made without departing from the spirit of the invention and within its scope as claimed.

Having described my invention, what I claim is :

1. In the field of data management by means of computers and networks, so-called computerized data processing, the systematic inserting of any information
5 related to the time of collecting and/or processing and/or storing and/or transmitting and/or displaying-
printing data into any computerized representation of any character and/or symbolic sign, and/or any basic string
of characters and/or symbolic signs, resulting in
10 Microtimed Data Processing.
2. The combination of claim 1 with any extension of any existing code for information interchange resulting in a microtimed representation of data.
3. The combination of claim 1 with any code for
15 information interchange specifically designed for
Microtimed Data Processing.
4. The combination of claim 1 with Input/Output communication ports specifically designed for Microtimed
Data Processing.
- 20 5. The combination of claim 1 with data buses, control buses and address buses specifically designed for
Microtimed Data Processing.
6. The combination of claim 1 with central memories and permanent memories specifically designed for Microtimed
25 Data Processing.
7. The combination of claim 1 with central processing units, arithmetic and logic units, microprocessors and various processing units specifically designed for
Microtimed Data Processing.

8. The combination of claim 1 with Input/Output control units specifically designed for Microtimed Data Processing.

9. The combination of claim 1 with Direct Memory Access control units specifically designed for Microtimed Data Processing.

10. The combination of claim 1 with basic operating instructions, internal and user operating systems, utility programs, machine and user-oriented software languages, application softwares, software packages dedicated to computers specifically designed for Microtimed Data Processing.

11. The combination of claim 1 with various Input/Output peripheral devices - including analog Input/Output peripheral devices - specifically designed for Microtimed Data Processing.

12. The combination of claim 1 with interface adapters dedicated to non-fitted Input/Output peripheral devices - including analog-to-digital and digital-to-analog converters -, specifically designed for handling with Microtimed Data Processing fitted computers and/or Input/Output peripheral devices.

13. The combination of claim 1 with basic operating instructions, internal and user operating systems, utility programs, machine and user-oriented software languages, application softwares, software packages dedicated to non-fitted computers and/or Input/Output peripheral devices emulating Microtimed Data Processing fitted computers and/or Input/Output peripheral devices.

14. The combination of claim 1 with hardware add-on devices dedicated to non-fitted computers and/or

Input/Output peripheral devices for the purpose of emulating Microtimed Data Processing fitted computers and/or Input-output peripheral devices.

15. The combination of claim 1 with communication
5 protocols, data interchange codes, network automation protocols, handshaking protocols, communication softwares and system network organisations specifically designed for Microtimed Data Processing.

16. The combination of claim 1 with communication
10 protocols, data interchange codes, network automation protocols, handshaking protocols, communication softwares and system network organisations specifically designed for supporting both Microtimed Data Processing and traditional non-timed data processing.

15 17. The combination of claim 1 with data communication equipment, interface adapters, network interface cards, data phones specifically designed for Microtimed Data Processing.

18. The combination of claim 1 with data communication
20 equipment, interface adapters, network interface cards, data phones specifically designed for supporting both Microtimed Data Processing and traditional non-timed data processing.

ABSTRACT OF THE DISCLOSURE

MICROTIMED DATA PROCESSING

5 In the field of data management by means of
computers and networks, so-called computerized data
processing, the systematic inserting of any information
related to the time of collecting and/or processing
and/or storing and/or transmitting and/or displaying-
10 printing data into any computerized representation of any
character and/or symbolic sign, and/or any basic string
of characters and/or symbolic signs, resulting in
"Microtimed Data Processing". The expected improvements
are numerous and powerful in terms of data processing
15 control and checking, and more generally in terms of data
managing.