Paper No. 18

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte NORBERT KNAB and HOLGER PRUESSEL

Appeal No. 1999-2418
Application No. 08/737,510

HEARD: October 9, 2001

Before HAIRSTON, KRASS, and BLANKENSHIP, Administrative Patent Judges.

KRASS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the final rejection of claims 1-4. Claims 5-9 have been held to contain allowable subject matter and are not before us on appeal.

The invention is directed to a circuit for operating microprocessors. The particular program sequence followed by the microprocessor is dependent on the condition of a device that is controlled by the microprocessor. The invention takes into account the condition of the controlled device in order to distinguish between a reset signal which has appeared as a result of electromagnetic interference, for example, and another reset signal. By distinguishing between these different reset signals, undesired operating situations are avoided.

Independent claim 1 is reproduced as follows:

1. Circuit for operating computing components, in particular microprocessors, with said circuit including at least one reset device, which as a result of interferences transmits a reset signal to the computing component to provide a varied program sequence following the appearance of a reset signal, wherein said sequence is determined in dependence on a compare signal provided by a comparator, and wherein the comparator compares a signal value that reflects the present condition of a device, which cooperates with and is controlled by the computing component, with at least one threshold value to provide the compare signal.

The examiner relies on the following references:

Abo et al. (Abo)	4,363,092	Dec. 07, 1982
Urban	4,683,568	Jul. 28, 1987

Claims 1-4 stand rejected under 35 U.S.C. 103 as unpatentable over Urban in view of Abo.

Reference is made to the brief and answer for the respective positions of appellants and the examiner.

OPINION

It is the examiner's position that Urban teaches the monitoring of a microprocessor wherein the monitoring device has a signal generator stage for reset signals and a determination is made as to whether a reset signal was effected by the monitoring device. The examiner contends that Urban discloses a comparison operation between a signal and a predetermined value and that computer elements are reset as a result of said comparison. According to the examiner, Urban also discloses a varied program sequence. The examiner identifies Urban's abstract and columns 1 and 2 for the alleged teachings.

The examiner concedes that Urban does not disclose that

the device being monitored is also being controlled and so the examiner relies on Abo and points to Figure 3 of that reference, identifying a reset circuit 15, a monitor circuit 13 and a device 12 that is being controlled as a result of a disturbance.

The examiner then concludes that it would have been obvious to modify a method of monitoring computer elements by incorporating the features from Abo because such a modification "will provide a system that will take sufficient steps to protect the device so that such device is never rendered uncontrollable, thereby improving the performance of the system" [answer-page 4].

For their part, appellants contend that claim 1 requires a signal that reflects the present condition of a device controlled by the computing element; at least one threshold value; and a comparison of at least one threshold value with the signal to provide a compare signal which determines the varied program sequence. Contrasted with this claimed subject matter, appellants contend that Urban discloses a method of monitoring computer elements where the memory content is checked when a reset signal occurs in order to determine which

reset device triggered the reset command. Thus, according to appellants, Urban merely discloses determining whether a reset signal was triggered unconditionally or by activity of a monitoring device but is silent as to a comparison feature comparing a signal reflecting the present condition of a device controlled by the computing component and a threshold value, as claimed by appellants.

While appellants also point out that Urban does not disclose that the microprocessor is connected to a device which is controlled by the microprocessor and utilizes a program sequence, this much was recognized by the examiner and is the reason for the examiner's reliance on Abo.

Appellants stress that whereas Urban merely distinguishes between a watchdog (monitor) reset and a power-on reset, the instant claimed invention permits a varied program sequence to be planned upon the appearance of a reset signal, depending on the condition of the controlled and monitored device.

Appellants admit that Abo does teach a malfunction-prevention system for a microcomputer wherein a device 12 is monitored and controlled but they contend that Abo nowhere discloses or suggests providing a varied program sequence

following the appearance of a reset signal wherein the sequence is determined in dependence on a compare signal provided by a comparator and wherein the comparator compares a signal that reflects the present condition of a device which cooperates with and is controlled by the computing component with at least one threshold value to provide the compare signal.

We agree with appellants.

Both parties agree that Urban has no disclosure or suggestion of a device which cooperates with and is controlled by the computing component (i.e., the microprocessor). Urban merely discloses determining whether a reset signal was generated by a monitoring device 2 or by a power-on reset circuit. Accordingly, Urban cannot disclose or suggest comparing a signal reflecting the present condition of that device with a threshold value, the result of said comparison being used to determine a varied program sequence. Thus, for the rejection to be valid, Abo must provide such a suggestion.

Abo does provide for a controlled device, 12, but we find no suggestion in Abo of providing a varied program sequence dependent on a comparison of the present condition of device,

12, and a threshold value. The examiner apparently relies on Urban for the varied program sequence because the microprocessor, 1, of Urban will either perform a complete reinitialization of the microprocessor or a shorter program sequence, depending upon whether the reset signal is produced, respectively, from the power-on reset circuit, 5, or the monitoring device, 2. One might also say that the program sequence followed in Urban is dependent on a comparison because a comparison is made between a pattern stored in ROM 6 and a pattern present in RAM 7. However, this is not a comparison between the present condition of a controlled device and a threshold value, as required by the instant claims.

Thus, the question remains as to why and/or how the skilled artisan would modify Urban, in some manner, to take the controlled device, 12, of Abo, monitor its present condition (which monitor circuit, 13, may be said to do), compare that present condition to a threshold value and then use the result of that comparison, instead of a comparison of patterns in two memories, to provide a varied program sequence

in Urban.

It is true that Abo uses the monitor circuit, 13, to initiate a reset signal for restarting the computer under certain conditions and it is true that Urban's microprocessor varies its program sequence based on the cause of a particular reset signal, but we find no reason, from the evidence provided by these references, to totally redesign Urban's circuitry to provide for a varied program sequence based on a comparison of the present condition of a controlled device with a threshold value. Even if, somehow, one were to provide the reset signal at input 12 of Urban's microprocessor from the reset circuit 15 of Abo, any "comparison" resulting in the choice of which program sequence to pursue would still be a comparison between patterns in memories 6 and 7 of Urban, and not from a comparison of the present condition of a controlled device with a threshold value, as required by the instant claims.

At pages 5-6 of the answer, the examiner contends that a signal indicative of a condition of monitoring device, 2, of Urban is compared to a threshold value (though the examiner

never indicates where this is taught in Urban and we find no comparison of the condition of monitoring circuit, 2, with a threshold value) and that the "reset signal may be considered and the signal indicative of the condition of the device." We do not understand the quoted portion of the examiner's position. Perhaps there was a typographical error and the examiner meant to say that the reset signal may be considered "as" the signal indicative of the condition of the device. Even so, if the reset signal, itself, is the signal indicative of the condition of the monitoring device, Urban does not compare this reset signal with a threshold value to provide a varied program sequence. It is the comparison of the patterns in the ROM and RAM which provides for the varied program sequence. Further, if it is the reset signal in Urban on which the examiner relies for a teaching of a signal indicative of the condition of the device, 2, it is noted that monitoring device, 2, is not a device "which cooperates with and is controlled by the computing component," as required by the instant claims. Moreover, the examiner recognized this deficiency of Urban in applying Abo for the teaching of a controlled device, 12.

Thus, we are not convinced, by the examiner's rationale, that the instant claimed subject matter would have been obvious, within the meaning of 35 U.S.C. 103, based on the evidence provided by Urban and Abo.

The examiner's decision rejecting claims 1-4 under 35 U.S.C. 103 is reversed.

REVERSED

KENNETH W. HAIRSTON Administrative Patent Judge	)	
ERROL A. KRASS Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
HOWARD B. BLANKENSHIP Administrative Patent Judge	)	

EK/RWK

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