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(54) Titre : PROCÉDE DE CONFIGURATION DE PROGRAMMES SPECIFIQUES A DES APPAREILS DANS UNE IMPRIMANTE OU UNE PHOTOCOPIEUSE, PROGRAMME ASSOCIE, SUPPORT DE DONNEES ASSOCIE ET COMMANDE D'APPAREIL ASSOCIEE, ET IMPRIMANTE OU PHOTOCOPIEUSE  
 (54) Title: METHOD FOR THE CONFIGURATION OF DEVICE-SPECIFIC PROGRAMS IN A PRINTER OR COPIER, CORRESPONDING PROGRAM, CORRESPONDING DATA CARRIER AND CORRESPONDING DEVICE CONTROL, AND PRINTER OR COPIER

(57) **Abrégé/Abstract:**

The invention relates to a method for the configuration of a device-specific program system. Adjusting values that require different loading operations are input during an input phase (t4 to t5). The first adjusting value is then transmitted to the device-specific program system (t8). The device-specific program system carries out a loading operation (t8 to t9) required for the processing of the first adjusting value. The second adjusting value is transmitted to the device-specific program system (t10) and a corresponding loading operation is carried out (t10a to t11). The inventive method allows a user to input the second adjusting value already before the first loading operation is completed.

**Abstract**

The invention relates to a method for the configuration of a device-specific program system. Adjusting values that require different loading operations are input during an input phase (t4 to t5). The first adjusting value is then transmitted to the device-specific program system (t8). The device-specific program system carries out a loading operation (t8 to t9) required for the processing of the first adjusting value. The second adjusting value is transmitted to the device-specific program system (t10) and a corresponding loading operation is carried out (t10a to t11). The inventive method allows a user to input the second adjusting value already before the first loading operation is completed.

**METHOD FOR THE CONFIGURATION OF DEVICE-SPECIFIC PROGRAMS IN A PRINTER OR COPIER, CORRESPONDING PROGRAM, CORRESPONDING DATA CARRIER AND CORRESPONDING DEVICE CONTROL, AND PRINTER OR COPIER**

The invention is directed to a method for the configuration of device-specific programs.

In a load event, a device-specific is edited for execution in a main memory of a device controller. Such an event is generally also referred to a configuration of the device-specific program. When the program is an operating system, for example the operating system WINDOWS 95, WINDOWS 98 or WINDOWS NT, then the load event is also referred to as booting. The operating system acts as a link between application programs and electronic components of the computer and fulfills central tasks, for example the central memory management and the control of the input and output units.

A known program system containing a plurality of device-specific programs is utilized for the control of high-performance printers of Océ Printing Systems GmbH. In particular, there is a unit in these printers for processing image data that is referred to as SRA controller (Scalable Raster Architecture). The program system that controls the SRA controller can be configured for various applied purposes. There is the possibility for an operator to select one specific bus system for a plurality of different bus systems. In high-performance printers, thus, there are input bus systems for /370 computers of IBM, an SCSI bus system (Small Computer System Interface), a Centronics interface as well as other bus systems.

The operator can also selected from various types of emulation. Dependent on the type of emulation, the data transmitted to the printer over the bus system are interpreted according to a prescribed printer language, for example according to the printer language PCL (Printer Control Language) or some other printer language.

Newer high-performance printers also have the possibility of a selection between different values for the resolution of the image to be printed. The

resolution defines the plurality of picture elements to be printed per length unit. A reference length unit of 1 inch (25.4 mm) is standard. Thus, a selection can be made between a resolution of 600 dpi (dots per inch), 300 dpi and 240 dpi.

When configuring the device-specific program system, there are situations  
5 wherein setting values are set to standard values, for example when the printer language is changed and the new printer language no longer supports a print resolution that was employed until then. Hitherto, the setting of standard values has often led to operating errors since the operator does not notice the switch to a standard value until later.

10 The prior procedure is disadvantageous in several respects. The most recently valid setting values are employed in every load event. The load event itself then often lasts several minutes. When a setting value employed in the first load event, for example the new printer resolution, must be modified, then the operator must return to the printer and implement another load event. When an  
15 operator has a plurality of printers to operate, for example ten printers, then the configuration of the printers requires greater attention at the beginning of a shift if the operator would like to simultaneously configure a plurality of printers. Operating errors also delay the availability of the printer or copier system for printing or, respectively, copying.

20 EP 0 933 693 A2 discloses a method for the presentation of the setting information of at least one multi-layer user interface, whereby various functions of the user interface are displayable on a display unit of a computer system. The setting data can be modified by the operator. The modified setting information are stored in a memory area. Given a renewed display of the setting information, the  
25 current settings are determined from the stored setting information. The multi-layer user interface is part of a printer driver program module that is processed with the assistance of a data processing system, for example with the assistance of a personal computer. This program module is also referred to as printer driver and serves the purpose of generating printer-adapted print data in the data processing  
30 system, whereby the printer-adapted print data are transmitted to the printer after

29246-29

-3-

being generated. Further, European Patent Application EP 0 933 693 A2 discloses a system for running such a method.

WO 97/32274 discloses an open printing system  
5 wherein print data that have been generated by arbitrary computer types are automatically forwarded to various types of printers. Print jobs that contain print data are thereby automatically distributed from an arbitrary plurality of source computers to an arbitrary plurality of printers, for  
10 example with the assistance of a print server, whereby the method for operating the open system includes the monitoring of the handling of the print jobs on high-performance printer devices with the assistance of a graphic user interface.

15 Neither EP 0 933 693 A2 nor WO 97/32274 discloses a setting possibility for the configuration of device-specific programs directly at the printer or copier device.

An object of embodiments of the invention is to disclose a simple method for the configuration of device-  
20 specific programs in a printer or copier device that relieves the operator. Moreover, an appertaining program, an appertaining device controller as well as a printer or copier device having this device controller are to be recited.

25 In accordance with one aspect of the present invention, there is provided a method for the configuration of device-specific programs in a printer or copier device, wherein after the printer or copier device is turned on in a first load event, an operating system is loaded by a device  
30 controller of the printer or copier device, and wherein at least one device-specific program is processed with the assistance of the device controller of the printer or copier

29246-29

-3a-

device, wherein at least one setting value for a second load event is stored for loading the device-specific program in a memory area of the device controller as original setting value, wherein the stored setting value is automatically  
5 output at a display unit of the printer or copier device before or during the implementation of the second load event, wherein the output setting value can be modified with the assistance of an input unit of the printer or copier device, wherein in case of a modification of the output  
10 setting value the modified setting value for the second load event is stored, wherein the device-specific program in the second load event, is loaded upon employment of the modified setting value, if a modification of the original setting value has ensued, and wherein the device-specific program in  
15 the second load event is loaded upon employment of the original setting value, if no modification of the original setting value has ensued.

In accordance with a second aspect of the present invention, there is provided a device controller of a  
20 printer or copier device, wherein after the printer or copier device is turned on, said device controller loads in a first load event an operating system, comprising a memory unit, in which at least one setting value for a second load event to be executed after the first load event is stored as  
25 original setting value, comprising an input unit for the input of a modified setting value, wherein an automatic start of the second load event after the execution of the first load event in case of a modification of the original setting value upon employment of the modified setting value  
30 ensues, and wherein an automatic start of the second load event after the implementation of the first load event upon employment of the original setting value ensues, if no modification of the original setting value has ensued.

29246-29

-3b-

In accordance with a third aspect of the present invention, there is provided a method for configuration of device-specific programs in a printer or copier device, comprising the steps of: processing the device-specific programs with assistance of a device controller of the printer or copier device; storing in a memory area of the device controller at least one setting value corresponding to a first device-specific program for a load event for loading of said first device-specific program at a turn-on of the printer or copier device; automatically outputting the stored setting value at a display unit of the printer or copier device before or during the implementation of the load event; when required, modifying the setting value with assistance of an input unit of the printer or copier device before or during the load event and storing said modified setting value, said modified setting value corresponding to a second device-specific program; and readying at least said first or second device-specific programs for loading during the load event by use of the stored or modified setting values.

In accordance with a fourth aspect of the present invention, there is provided a computer readable medium embodying a computer program for configuration of device-specific programs used for controlling a printer or a copier device, comprising: a command sequence that can be implemented by a processor of a device controller of the printer or copier device; and the device controller is initiated upon execution of the command sequence to implement the following steps: processing the device-specific programs with assistance of said device controller, storing in a memory area of the device controller at least one setting value corresponding to a first device-specific program for a load event at a turn-on of the printer or

29246-29

-3c-

copier device, automatically outputting the stored setting value at a display unit before or during implementation of the load event, and when required, modifying the setting value with assistance of an input unit before or during the  
5 implementation of the load event, the modified setting value corresponding to a second device-specific program, and readying at least said first or second device-specific programs for loading during the load event by use of the stored or modified setting values.

10 In accordance with a fifth aspect of the present invention, there is provided a printer or copier device, comprising: a memory for storing a setting value corresponding to a first device-specific program or for  
15 storing a modified setting value corresponding to a second device-specific program; a device controller which controls loading of said first or second device-specific programs at a turn-on of the printer or copier device; a display unit which automatically outputs the stored setting value before  
20 or during implementation of the load event for the first device-specific program; an input unit used for said modification of said setting value before or during the implementation of the load event; and said device controller readying the first or second device-specific programs for  
25 loading during the load event by use of the stored or modified setting values.

In another aspect of the inventive method, at least one setting value for a load event is stored in the memory of a device controller. The stored setting value is  
30 output before or during the implementation of the load event, for example on a display unit of the printer or copier device. The setting value can be modified by an operator. A modified setting value is stored for the load event. Either the modified setting value, if a modification

29246-29

-3d-

has ensued, or the originally stored setting value, if no modification ensued, is then employed during the load event. At least one device-specific program in a memory unit is edited for implementation upon employment of the setting  
5 value during the load event.

The automatic display of the stored setting value before or during the implementation of the load event leads thereto that the operator is informed early

about the later status of the device-specific programs. When the operator decides to modify the setting values, then he can intervene early in the load event.

In a development of the inventive method, a setting value for the device-specific program edited in the first load event can already be prescribed before or during the implementation of the first load event. When a setting value is prescribed, then this is stored. The first load event is ended without interruption or is interrupted after the setting value is prescribed. Subsequently and dependent on the prescribed setting value, the second load event for editing the same device-specific program is automatically implemented. When, in contrast, no setting value is prescribed during the execution of the first load event, then only the first load event is executed, i.e. the setting values prescribed for the first load event are effective. Given this aspect, an operator need not wait to prescribe the setting value until the first load event has ended. On the other hand, the load event can be provisionally begun without an input from the operator.

In a development of the inventive method according to both aspects, the program system contains commands for the control of a printer or copier device, particularly a high-performance printer or copier device. A plurality of components that are controlled by the device-specific program system must collaborate in a printing event. The collaboration of the assemblies leads to an interlacing of the device-specific program modules for driving the individual components. Thus, check steps are required that assure that no malfunctions that prevent a print operation arise due to incorrectly prescribed parameters when the printer or copier device is turned on. Complex interrelationships in the selection of the aforementioned setting values, i.e. of the setting values for the active bus system, for the printer language and for the resolution, derive in a similar way. The collaboration of the components makes the setting of various setting values difficult in a single load event. A plurality of load events are therefore often required, particularly given printer or copier devices and, in particular, given the complex high-performance printers.

In one development, the setting possibilities relate to prescribing a bus system for the input of print data, the prescribing of a printer language and/or the

prescribing of the image resolution for the image to be printed. A selection from predetermined setting possibilities is made for each setting possibility. Said setting possibilities are setting possibilities that require a plurality of new load events given specific combinations. In contrast thereto, there are also setting possibilities that can be implemented without a renewed load event, for example the setting of the page format or the orientation of the print image on the page given printer or copier devices. As previously, such setting possibilities are prescribed in common for the respective print or copy job given utilization of the inventive method.

In one development, the device-specific program system controls a first device controller. The setting possibilities are prescribed given operation of a second device controller and at least the second setting value is stored in the second device controller. Immediately after input are only after the input of the second setting value as well, the first setting value is transmitted to the device controller. In one embodiment, the data transmission connection is a bus system within a device. In other embodiments, a local network that, for example, is limited to one concern [...]. The advantages of modularization can be utilized by employing two device controllers. Both device controllers can thus be simultaneously activated by actuating a main switch. The setting values can be input as soon as the second [sic] device controller is operational. One need not wait until the second device controller is also operational. The data transmission between the two device controllers is controlled such by a communication program that no data losses occur.

In one development, the second device controller is a service computer for controlling a control field for the input and/or display of printing parameters for the printing event in a printer or copier device, particularly in a high-performance printer or copier device. In this case, the second device controller is more likely to be operational after the turn-on compared to the first device controller because only a comparatively small operating system is required. Shortly after the printer or copier device is turned on, an operator can check the parameters and potentially modify them via the control field.

In a next development, the load events contain the editing of what are referred to as processes or, respectively, what are referred to as threads. A plurality of processes can be supplied to the same program module given execution of the commands. However, a different area for storing program-specific data is allocated to each process in the main memory. One process can contain a plurality of threads to which a separate program counter, a separate stack memory and, potentially, a separate register set of the processor executing the commands are respectively allocated. In this development, the load event of a program module particularly comprises steps for editing the execution of the process or of the thread.

The inventive method can be modified such that, after the device controller controlled by the program system is turned on, at least one currently valid setting value is displayed at a display unit. Another setting value can be input before the beginning of the load event with the displayed setting value. As a result of these measures, an operator has the possibility of checking and, potentially, modifying the setting value valid upon turn-on without having to wait for the end of a load event that may then possibly have to be repeated again later with the modified setting value.

In an alternative development, the inventive method is modified such that the load event is automatically started with the currently valid setting values after the device controller is switched on. The load event can be interrupted for inputting a different setting value. The load event with the currently valid setting values is thus provisionally started and potentially aborted when a different setting value is to be employed. When a different setting value is not to be input, then the load event is executed without incurring a delay due to the operator's decision. In one development, the interruption of the provisionally started load event is only possible within a prescribed time span.

In a development of the method according to a first aspect, the first program is an operating system. The second program is a device-specific user program or a device-specific application program. Particularly given an operating

program, the time for a load event is often longer than a minute. Waiting times for the operator can thus be considerably shortened.

The invention is also directed to a device-specific program, to a data carrier and to a device controller for the implementation of the inventive method. The  
5 inventive device controller has a memory unit in which at least one setting value is stored before the implementation of the appertaining load event. After the execution of a first load event with the one setting value, a control unit of the device controller hands over the other setting value to the device-specific program system for the execution of a second load event. The effects cited above for the  
10 method thus also apply to the device controller. In developments, the device controller is constructed such that the developments of the inventive method can also be executed.

The invention is also directed to a printer or copier device, particularly a high-performance printer device or a high-performance copier device, that contain  
15 [sic] an inventive device controller. The inventive printer or copier device is distinguished by a high degree of operating friendliness. An operator who must operate a plurality of inventive copier or printer devices is not excessively burdened when configuring the printer or copier devices because all setting values for the printing events at the printer or copier devices can be respectively input  
20 without interruption in one work process.

Exemplary embodiments of the invention are explained below on the basis of the accompanying drawings. Shown therein are:

- Figure 1 assemblies in a high-performance printer or copier device;
- Figure 2 events in the assemblies during the turn-on procedure;
- 25 Figure 3 selection fields displayed during the turn-on procedure; and
- Figure 4 a selection list for selecting a printer language.

Figure 1 shows three assemblies in a high-performance printer or copier device 10, namely a control panel 12, a device controller 14 and an SRA controller 16 (Scalable Raster Architecture). The control panel 12 is a commercially  
30 available personal computer with a processor, a main memory, an input keyboard and a display unit, for example a picture screen. For example, the operating

system WINDOWS 98 is employed as operating system. The control panel 12 serves for the input and for displaying printing parameters for the print events to be carried by the printer or copier device 10. The structure of the control panel 12 is known, for example, from the high-performance printer PAGERSTREAM 145 of  
5 Océ Printing Systems GmbH.

The device controller 14 contains a control computer for controlling the printing units of the printer or copier device 10. These printing units include an exposure unit for the selective exposure of a toner image on the photoconductor, a transmission unit for transmitting the toner image onto a print image carrier, for  
10 example paper, a fixing unit for fixing the toner image as well as further auxiliary units. The units are not shown in Figure 1 since they correspond to the units of known printer or copier devices, for example to the units in the high-performance printer PAGERSTREAM 158 of Océ Printing Systems GmbH.

The controller 16 serves the purpose of processing print data to be printed.  
15 Nine processors working in parallel are contained in the controller 16, these, for example, implementing a scaling of the print image. The operating system WINDOWS NT is used as operating system in the controller 16. The function of the controller 16 corresponds to that of the controller employed in the PAGERSTREAM 158 printer.

20 A data transmission connection 18 between control panel 12 and device controller 14 as well as a data transmission connection 20 between device controller 14 and SRA controller serve for the transmission of control instructions between the assemblies 12 through 16. A data transmission connection 22 that lies between control panel 12 and controller 16 is employed in an alternative  
25 embodiment.

Figure 2 shows events in the control panel 12, in the device controller 14 and in the controller 16 during the turn-on event of the printer 10, see Figure 1. Time axes 50, 52 and 54 are allocated in this sequence to the control panel 12, the device controller 14 and the controller 16, events in the respective component  
30 being shown dependent on the time  $t$  on said time axes. Later points in time are shown farther down on the time axes 50, 52 and 54 than points in time that lie

earlier. Points in time that occur simultaneously lie on a straight line that lies at a right angle to the parallel time axes 50, 52, 54. The printer or copier device 10 is turned on, i.e. connected to the power supply network, at a time  $t_0$ . A time  $t_{0a}$  or, respectively,  $t_{0b}$  on the time axis 52 or, respectively, 54 corresponds to the time  $t_0$  on the time axis 50. At time  $t_0$ , load events are begun simultaneously in the control panel 12, in the device controller 14 and in the controller 16. In the control panel 12, the WINDOWS 98 operating system 98 is copied from a non-volatile memory unit, for example a hard disk, into a volatile main memory. A specific type of control program is situated in a non-volatile memory (ROM – read-only memory) in the device controller. The load event in the device controller 14 is therefore ended at a time  $t_1$  after only a few seconds. The load event in the control panel 12 lasts longer than the load event in the device controller and is over at a time  $t_2$ .

The operating system WINDOWS NT must be booted and user programs must be edited in the controller 16, see load event I. This events lasts longer than two minutes. During this time span, the events explained below are already being carried out in the control panel and in the device controller 14.

At a time  $t_3$ , which corresponds to a time  $t_{3a}$  on the time axis 52, the control panel 12 and the device controller 14 exchange commands for the synchronization via the data transmission connection 18. After the synchronization event, data can be sent from the control panel 12 to the device controller 14 and in the opposite direction.

At a time  $t_4$ , selection fields are displayed on the display unit of the control panel 12. The selection fields are presented in a boot menu. The selection fields for the selection of a channel, of a printer language and of a resolution are explained below on the basis of Figure 3. The selection fields are displayed on a display unit of the control panel 12 for a time span  $T_1$  of sixty seconds. During these sixty seconds, the operator of the printer or copier device 10 has the possibility of actuating the selection fields in order to modify setting values for the printing event. When no input ensues during the sixty seconds, then the display fields are no longer presented on the display unit after expiration of the time span

T1, i.e. the boot menu is closed, see time t5. When the operator actuates a selection field during the sixty seconds, then the selected setting is stored after the expiration of the sixty seconds. Subsequently, the selection fields are no longer displayed during the configuration of the printer or copier device.

5           At a time t6, which corresponds to a time t6a on the time axis 52, the parameters set in the boot menu for the selected channel, the selected printer language and the selected resolution are sent to the device controller 12 from the control panel 12. The device controller 14 waits until the load event I in the controller 16 is over at a time t7.

10           The operating system WINDOWS NT was booted first in the controller between the times t0b and t7. The boot end was reached at a time tA. Subsequently, [...] was executed in a load event Ia wherein a device-specific application program for the drive of the channel or, respectively, bus system is prepared for execution with the parameters that exist when the printer or copier  
15   device is switched off. The load event Ia is ended at a time tB. Subsequently, the execution of a program is readied in a load event Ib for the emulation of that printer language that had been employed when the printer or copier device was switched off.

          At a following time t8, which corresponds to a time t8a on the time axis 54,  
20   a parameter relating to a channel selection is sent from the device controller 14 to the controller 16 via the data transmission connection 20. After reception of this parameter in the controller 16, the controller 16 identifies the deviation of the parameter and implements a load event II up to a time t9, whereby the execution of a process with whose assistance data can be sent via the selected channel or,  
25   respectively, bus to the printer or copier device 10 is prepared in the main memory of the controller 16. The load event II lasts several minutes. For better illustration, the time axes 50, 52 and 54 during the boot event II have been shown shortened in Figure 2.

          At a following time t10, which corresponds to a time t10a on the time axis  
30   54, the device controller 14 sends the parameter relating to the printer language to the controller 16. After reception of this parameter, the deviation from the

-11-

parameter employed in the load event Ib is identified in the controller 16, and a load event III is started wherein a process is readied with the assistance of data of the selected printer language can be processed. The load event III lies between the time t10a and a time t11.

5           Let it be assumed in the exemplary embodiment that the parameter for the resolution agrees with the parameter for the resolution employed upon shut-off of the printer or copier device. This parameter was therefore already taken into consideration in the first load event I in the controller between times t0b and t7. The parameter for the resolution need not be transmitted from the device controller  
10 14 to the controller 16.

The printer or copier device 10 is ready to print after the expiration of the time span for warming up the fixing station that, for example, lies at four minutes, or after all load events I through III have ended if the load events I through III last longer.

15           The times shown in Figure 2 are only examples. Advantages due to the use of the inventive method also derive given other times. When the parameters are already sent from the device controller 14 to the SRA controller 16 before or during the load events Ia and Ib, then these load events can already be started with the new parameters or, respectively, can be prematurely aborted in order to then be  
20 started anew with the new parameters.

Figure 3 shows a boot menu 100 with selection fields 102 through 124 whose significance is described below. A title line 130 contains a reference thereto that the current configuration is identified by a double framing, as is the case given the selection field 108, 110 and 112. No framing is employed in practice; rather  
25 the current configuration is underlaid, for example, with a color that contrasts with the background of the other configurations. In an instruction line 132, the operator is prompted to actuate one of the buttons 102 through 124. Another instruction line 134 serves the purpose of indicating the time remaining for making a selection. The time particular in the instruction line 134 is updated every second.

30           The left column with the selection fields 102, 108, 114 and 120 serves for the selection of a specific channel for the input of the data to be printed. Given

-12-

selection of the selection field 102, the printer or copier device is not connected to a print server. The selection field 108 is allocated to a channel A that references a bus system as employed in a mainframe /370 of IBM. The selection field 114 is allocated to a channel B behind which an SCSI interface is hidden. A channel C of the selection field 120 relates to a Centronics interface. When an operator selects one of the buttons 102, 108, 114 or, respectively, 120 within in the time span T1 with the assistance of a touch sensor placed over the display unit – what is referred to as a touch-screen --, then the selected selection field 102, 108, 114 or, respectively, 120 is framed with double lines. The previously framed selection field is shown with single-line framing. Simultaneously, the two selection fields lying to the right of the selected selection field 102, 108, 114 or, respectively, 120 is shown with double framing, for example the selection fields 110 and 112 when the selection field 108 is selected.

The middle column composed of the selection fields 104, 110, 116 and 122 serves for the selection of an emulation mode. The available emulation modes are explained in greater below on the basis of Figure 4. The selection field 104 is allocated to an I-mode (intelligent mode) at the moment. The selection field 110 is allocated to the PCL mode wherein the print data are processed according to the printer language Printer Command Language of the HP company. The data field 116 is currently likewise allocated to the I-mode. An L-mode (line mode) is allocated to the selection field 122. Upon actuation of a selection field 104, 110, 116 or, respectively, 122, the selected selection field as well as the selection fields lying to the left and right of this selection field are shown doubly framed. A list with selection possibilities also appears, see Figure 4. The emulation mode selected according to the list is then taken as the value for the appertaining selection field 104, 110, 116 or, respectively, 122.

The selection field 106, 112, 118 and 124 of the right-hand column of the boot menu 100 serve for the selection of the image resolution of the print image to be printed. Dependent on the selected channel A, B or, respectively, C, various resolutions are available, for example 600 dpi, 300 dpi or 240 dpi. Upon actuation of one of the buttons 106, 112, 118 or 124, the corresponding button [sic] is shown

-13-

with a double frame. A selection list also appears from which the available image resolutions can be selected. The selected resolution is then allocated to the data field shown with a double frame. Upon actuation of one of the buttons 106, 112, 118 or, respectively, 124, the two buttons lying to the left are also likewise shown  
5 with a double frame.

After the expiration of the sixty seconds, the parameters allocated to the selection fields shown with double framing are then employed for the start of the printer.

The presentation of the boot menu 100 can be suppressed via a user menu.  
10 The operator can thus decide whether the boot menu should be displayed or not.

After the conclusion of the first boot event of the printer or copier system, a data bank is built up in the control panel 12 that contains information about the existing channel assemblies, the allowed emulations and the allowed printer resolutions. These data are sent from the controller 16 via the device control 14 to  
15 the control panel 12 and are stored at the latter. After every further turn-on event, a check is carried out in the execution of the programs of the control panel 12 regarding which is the current configuration. The data bank is updated dependent on the current configuration. The first line with the selection fields 102, 104 and 106 is selected, for example, by a maintenance technician when a different channel  
20 interface has been installed in the printer or copier device 10 because the data bank in the control panel 12 is only augmented with the parameter for the selection of the newly installed channel interface after the end of the boot of the controller 16.

Figure 4 shows a window 150 with a selection list 152 for the selection of an emulation mode. A title line 154 instructs the operator that codes for different  
25 printer modes are displayed in the window 150. An instruction line 156 contains the word "selection" for indicating the selection list 152. Various selection modes are listed in the selection list 152, including P-mode, E+C-mode, PCL mode. The selection valid at the moment is framed by a simple frame 158. Further selection possibilities in the selection list 152 can be displayed with the assistance of a  
30 vertical image scroll bar 160. The selection can be aborted with the assistance of a button 162. A button 164 serves for the confirmation of the selection. After the

-14-

actuation of the button 162 or of the button 164, the boot menu reappears. After the expiration of the sixty seconds and with an opened window 150, the entry of the selection list framed at the moment is employed for the boot event. In an alternative embodiment, an opened window 150 delays the closing of the boot  
5 menu 100.

The inventive method, however, can be advantageously utilized not only in printer or copier devices but can also be utilized in what are referred to as hybrid devices. Hybrid devices units the functions of several devices such as, for example, printer, copier, e-mail and/o facsimile functions.

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**List of Reference Characters**

|    |            |   |
|----|------------|---|
|    | 10         | high-performance printer or copier device |
|    | 12         | control panel                             |
|    | 14         | device controller                         |
| 5  | 16         | SRA controller                            |
|    | 18,20,22   | data transmission connection              |
|    | 50,52,54   | time axis                                 |
|    | t0,t0a,t0b | point in time                             |
|    | t1,t2      | point in time                             |
| 10 | t3,t3a     | point in time                             |
|    | t6,t6a     | point in time                             |
|    | t7         | point in time                             |
|    | t8,t8a     | point in time                             |
|    | t9         | point in time                             |
| 15 | t10,t10a   | point in time                             |
|    | t11        | point in time                             |
|    | tA,tB      | point in time                             |
|    | t          | time                                      |
|    | 100        | boot menu                                 |
| 20 | 102-124    | selection field                           |
|    | 130        | title line                                |
|    | 132,134    | instruction line                          |
|    | 150        | window                                    |
|    | 152        | selection list                            |
| 25 | 158        | frame                                     |
|    | 160        | vertical image scroll bar                 |
|    | 162        | button                                    |
|    | 164        | button                                    |
|    | I,II,III   | load event                                |
| 30 | Ia,Ib      | load event                                |

29246-29

-16-

CLAIMS:

1. Method for the configuration of device-specific programs in a printer or copier device,

wherein after the printer or copier device is turned on in a first load event, an operating system is loaded by a device controller of the printer or copier device,

and wherein at least one device-specific program is processed with the assistance of the device controller of the printer or copier device,

wherein at least one setting value for a second load event is stored for loading the device-specific program in a memory area of the device controller as original setting value,

wherein the stored setting value is automatically output at a display unit of the printer or copier device before or during the implementation of the second load event,

wherein the output setting value can be modified with the assistance of an input unit of the printer or copier device,

wherein in case of a modification of the output setting value the modified setting value for the second load event is stored,

wherein the device-specific program in the second load event, is loaded upon employment of the modified setting value, if a modification of the original setting value has ensued,

and wherein the device-specific program in the second load event is loaded upon employment of the original setting value, if no modification of the original setting value has ensued.

29246-29

-17-

2. Method according to claim 1, wherein the second load event for loading the device-specific program is automatically started before or while the stored setting value can be modified.

5 3. Method according to claim 2, wherein a second load event that has already begun with the stored original setting value at the time of the modification of the stored original setting value is ended without interruption or is interrupted;

10 and in that the second load event is automatically restarted with the modified setting value.

4. Method according to any one of claims 1 to 3, wherein the device-specific program contains commands for the control of a printer or copier device, particularly of a  
15 high-performance printer device or of a high-performance copier device.

5. Method according to any one of claims 1 to 4, wherein the stored setting value relates to  
the prescribing of a bus system for the input of print data  
20 for an image to be printed,  
and/or the prescribing of a printer language,  
and/or the prescribing of the image resolution of the image to be printed.

6. Method according to any one of claims 1 to 5,  
25 wherein the device-specific program controls a first device controller;

in that the stored setting value is prescribed given operation of a second device controller;

29246-29

-18-

and in that the device controller transmits the stored setting value to the first device controller via a data transmission connection.

7. Method according to claim 6, wherein the second  
5 device controller serves for the control of a control panel of a printer or copier device, particularly of a high-performance printer device, of a high-performance copier device or of a hybrid device.

8. Method according to any one of claims 1 to 7,  
10 wherein, during a second load event,  
  
program modules are written into the main memory;  
  
and/or that interfaces are configured for the data transmission;  
  
and/or that test programs for testing circuits components  
15 are implemented;  
  
and/or that processes and/or sub-processes are prepared for execution.

9. Method according to any one of claims 1 to 8,  
wherein, after the device controller is turned on, at least  
20 one currently valid setting value is automatically displayed at the display unit.

10. Method according to any one of claims 1 to 9,  
wherein, before a load event with the currently valid setting values, a further setting value can be input.

25 11. The method according to any one of claims 1 to 10,  
wherein the second load event with currently valid setting values is automatically started after the activation of the device controller;

29246-29

-19-

and/or that the second load event is interrupted after the input of a different setting value.

12. The method according to claim 11, wherein the setting value can be modified only within a prescribed time span.

13. The method according to any one of claims 1 to 12, wherein the program is an operating system or a user program or an application process.

14. A computer readable medium having computer readable code stored thereon for executing a computer program for the configuration of device-specific programs, comprising a command sequence that can be implemented by the processor of a device controller, wherein the device controller is initiated upon execution of the command sequence to implement the method steps according to any one of claims 1 to 12.

15. Device controller of a printer or copier device, wherein after the printer or copier device is turned on, said device controller loads in a first load event an operating system, comprising a memory unit, in which at least one setting value for a second load event to be executed after the first load event is stored as original setting value, comprising an input unit for the input of a modified setting value,

wherein an automatic start of the second load event after the execution of the first load event in case of a modification of the original setting value upon employment of the modified setting value ensues, and wherein an

29246-29

-20-

automatic start of the second load event after the implementation of the first load event upon employment of the original setting value ensues, if no modification of the original setting value has ensued.

5 16. Device controller according to claim 15, wherein it is employed for the control of a high-performance printer device, of a high-performance copier device or of a hybrid device.

10 17. Printer or copier device, particularly a high-performance printer, comprising a device controller according to claim 15 or 16.

18. A method for configuration of device-specific programs in a printer or copier device, comprising the steps of:

15 processing the device-specific programs with assistance of a device controller of the printer or copier device;

storing in a memory area of the device controller at least one setting value corresponding to a first device-specific program for a load event for loading of said first device-specific program at a turn-on of the printer or copier device;

20 automatically outputting the stored setting value at a display unit of the printer or copier device before or during the implementation of the load event;

25 when required, modifying the setting value with assistance of an input unit of the printer or copier device before or during the load event and storing said modified setting value, said modified setting value corresponding to a second device-specific program; and

29246-29

-21-

readying at least said first or second device-specific programs for loading during the load event by use of the stored or modified setting values.

19. The method according to claim 18 wherein the load event is automatically started before or while the stored setting value can be modified.

20. The method according to claim 19 wherein a load event that has already begun for the stored setting value is ended at a time of the modification of the stored setting value; and

the load event is automatically restarted with the modified setting value.

21. The method according to claim 18 wherein the device-specific program contains commands for the control of the printer or copier device.

22. The method according to claim 18 wherein the stored setting value relates to prescribing of a bus system for input of print data for an image to be printed, prescribing of a printer language, or the prescribing of image resolution of the image to be printed.

23. The method according to claim 18 wherein the device-specific program controls a first device controller; the stored setting value is prescribed given operation of a second device controller; and

25 the device controller transmits the stored setting value to the first device controller via a data transmission connection.

29246-29

-22-

24. The method according to claim 23 wherein the second device controller serves for control of a control panel of a printer or copier device.

25. The method according to claim 18 wherein during a  
5 load event program modules are written into the main memory, interfaces are configured for the data transmission, test programs for testing circuits components are implemented, or processes or sub-processes are prepared for execution.

26. The method according to claim 18 wherein after the  
10 device controller controlled by the device-specific program is turned on, at least one currently valid setting value is automatically displayed at a display unit.

27. The method according to claim 18 wherein before  
the load event with the currently valid setting values  
15 value, the modified setting value can be input.

28. The method according to claim 18 wherein the load  
event with the currently valid setting value is  
automatically started after activation of the device  
controller controlled by the device-specific program, or the  
20 load event is interrupted after input of the modified  
setting value.

29. The method according to claim 28 wherein the  
setting value can be modified only within a prescribed time  
span.

25 30. The method according to claim 18 wherein the  
program is an operating system, a user program, or an  
application process.

31. A computer readable medium embodying a computer  
program for configuration of device-specific programs used  
30 for controlling a printer or a copier device, comprising:

29246-29

-23-

a command sequence that can be implemented by a processor of a device controller of the printer or copier device; and the device controller is initiated upon execution of the command sequence to implement the following steps:

5 processing the device-specific programs with assistance of said device controller,

storing in a memory area of the device controller at least one setting value corresponding to a first device-specific program for a load event at a turn-on of the printer or  
10 copier device,

automatically outputting the stored setting value at a display unit before or during implementation of the load event, and when required, modifying the setting value with assistance of an input unit before or during the  
15 implementation of the load event, the modified setting value corresponding to a second device-specific program, and readying at least said first or second device-specific programs for loading during the load event by use of the stored or modified setting values.

20 32. A printer or copier device, comprising:

a memory for storing a setting value corresponding to a first device-specific program or for storing a modified setting value corresponding to a second device-specific program;

25 a device controller which controls loading of said first or second device-specific programs at a turn-on of the printer or copier device;

29246-29

-24-

a display unit which automatically outputs the stored setting value before or during implementation of the load event for the first device-specific program;

an input unit used for said modification of said setting  
5 value before or during the implementation of the load event;  
and

said device controller readying the first or second device-specific programs for loading during the load event by use of the stored or modified setting values.

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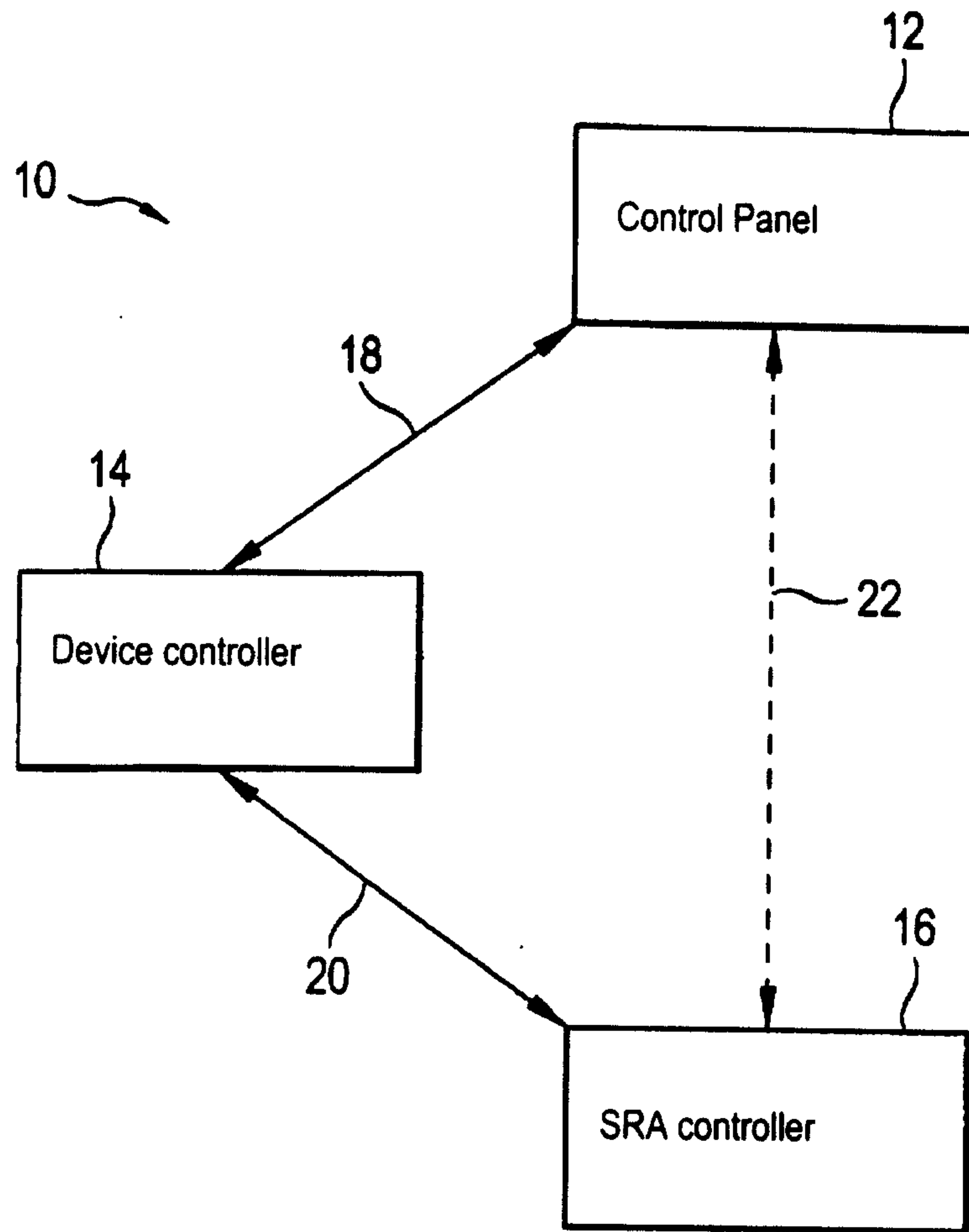


FIG.1

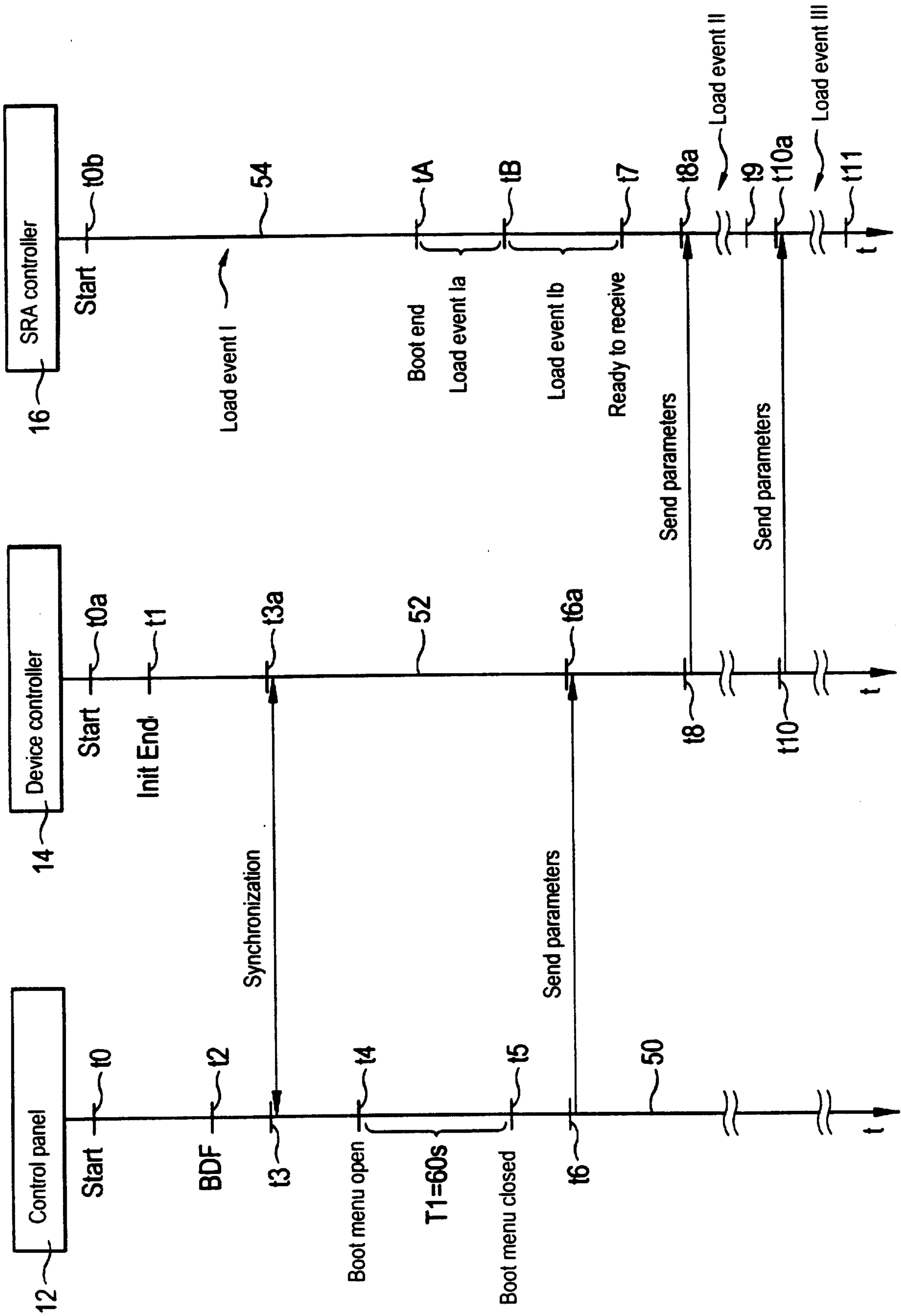


FIG.2

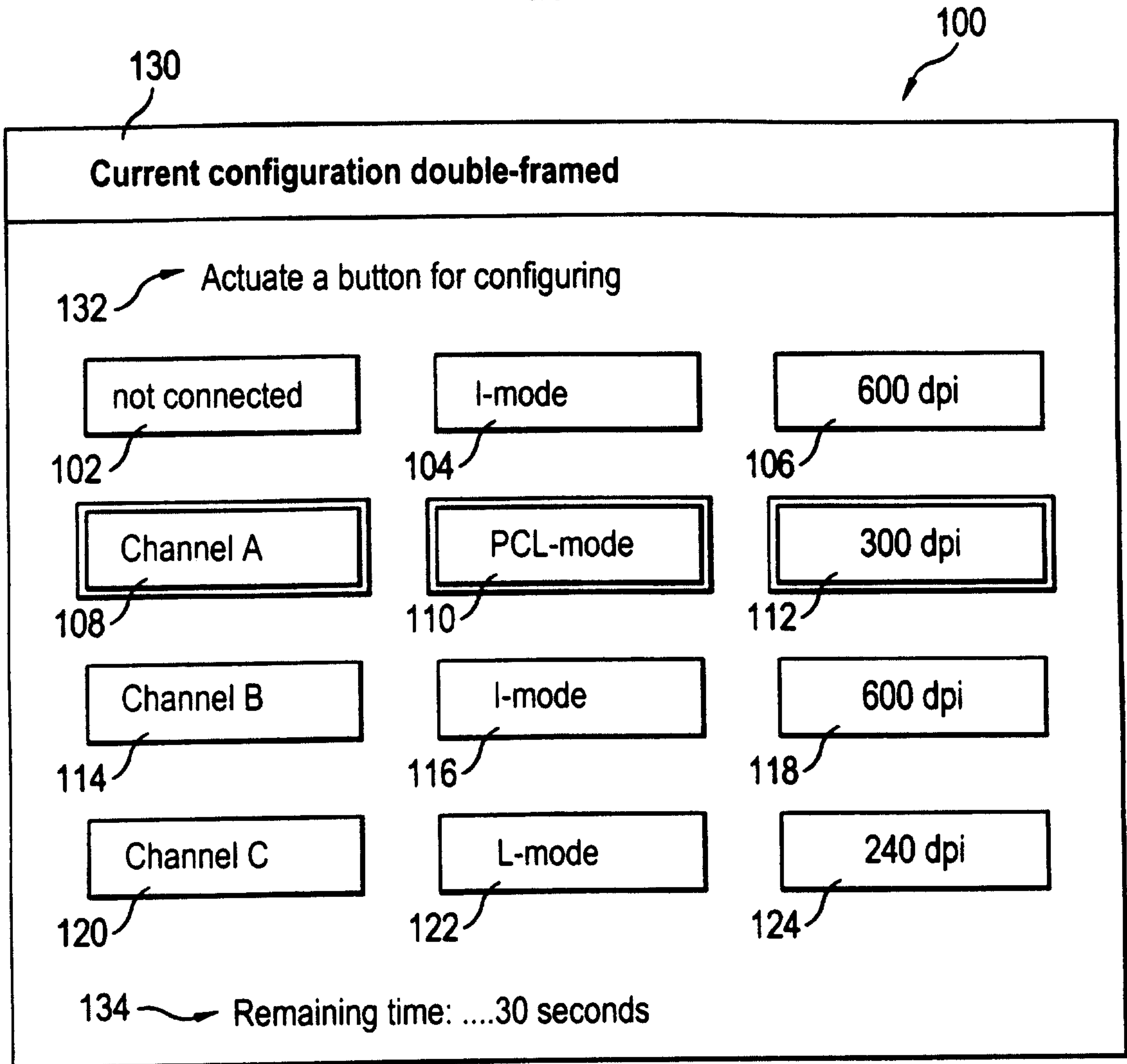


FIG.3

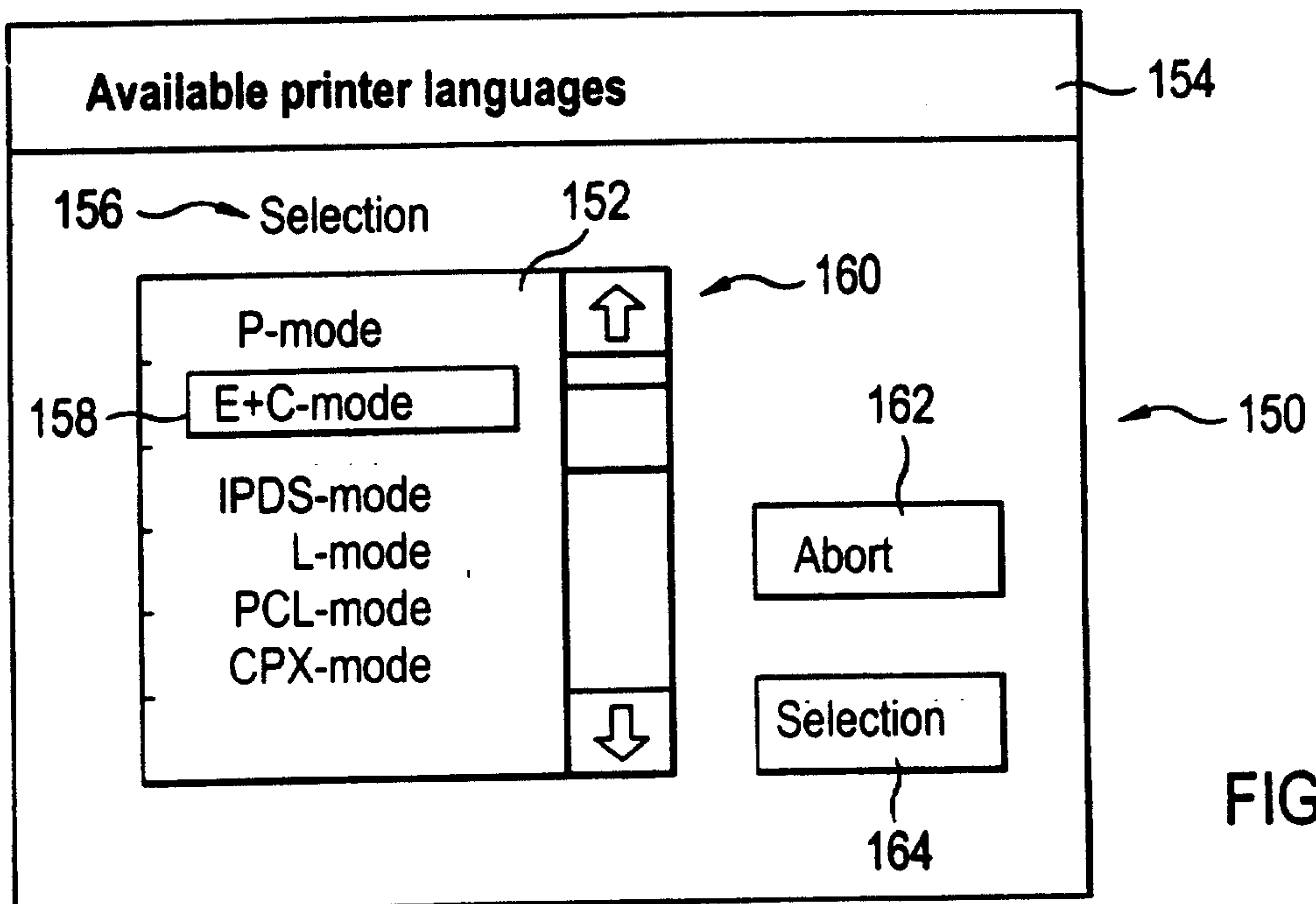


FIG.4