from special purpose circuit **40** and applies the audio signals to amplifier **44**, to be played on speaker **46** or headphones (not shown). In system **31**, AC_link_1 looks and behaves like the standard AC_link to South Bridge **32**, and AC_link_2 looks and behaves like the standard AC_link to Codec **42**, making it appear to those portions of the computer that audio functions are being performed as during normal (i.e., known in the art) audio play, thus having minimal or no impact on the operation of South Bridge **32** and Codec **42**. Also shown in **FIG. 3** are function switches **48**, small LCD display **34** and audio player power switch **54**, which function as described hereinbelow with reference to **FIG. 4**.

[**0037**] **FIG. 4** includes a detailed block diagram of the internals of special purpose circuit **40** and related details of the other portions of the computer that the special purpose circuit interfaces without showing all of the details of the rest of the computer system. Special purpose circuit **40** may be produced as an IC to minimize the PCB space needed to incorporate embodiments of the present invention into portable computers. South Bridge **32** is shown with the standard AC97 controller **50** and LPC (low pin count) controller **52** to the left of special purpose circuit **40** with the standard bidirectional links AC_link_1 and LPC Bus between them, and the unidirectional IRQ (Interrupt Request) link from special purpose circuit **40** to South Bridge **32**. To the right, special purpose circuit **40** provides uncompressed audio to AC97 Codec **42** via AC_link_2. Also, to the right, function keys **48**, and below LCD **34**, are each shown connected to special purpose circuit **40**. Additionally, **FIG. 4** includes system clock **56** connected to various components, and in the lower left, audio player power switch **54**. Power switch **54** is provided so that when the user initiates the player mode via power switch **54**, only the mini-OS (instead of the full system OS) is initiated, for use in a system consistent with the present invention.

[**0038**] Internal to special purpose circuit **40** are switches **60** that interface with both AC_link_1 and AC_link_2 and function in response to settings in an internal register of register block **66**, with switches **60** closed connecting AC_link_1 with AC_link_2 when the PC functions normally with the full system OS, and with switches **60** open when a system consistent with the present invention is employed. The LPC path is coupled to LPC interface. Switches **60** and AC_link_2 are coupled to state machine **64**, while another port of state machine **64** is coupled, via bus **74**, to the output of LPC interface **62**, as well as register block **66**, function key interface **68** and LCD interface **72**. A second port of register block **66** is also coupled to a third port of state machine **64**. Function keys **48** are coupled to function key interface **68**, and LCD **34** is coupled to LCD interface **72**. Also, function key interface **68** provides a signal to register block **66** when one of the function keys **48** is selected by the user. Audio player power switch **54**, which is operated by the user in the second step discussed above, may be used to activate the PC to operate as described hereinabove. Switch **54** is shown connected to the DC voltage source of the portable computer and not to any particular block in **FIG. 4**, since that connection varies depending on several factors controlled by the manufacturer of the computer on which an embodiment of the present invention is installed.

[**0039**] More specifically, the blocks within special purpose circuit **40** operate as follows:

LPC Interface

[**0040**] Special purpose circuit **40** includes LPC (Low Pin Count) interface **62** to interface with LPC controller **52** in South Bridge **32**.

[**0041**] The LPC interface **62** is used to by CPU **26** to:

[**0042**] (1) read the function key input registers in register block **66**;

[**0043**] (2) set the control register in register block **66** to control the AC97 Codec **42**;

[**0044**] (3) get the audio PCM (Pulse Code Modulation) data from the system memory (RAM **30**); and

[**0045**] (4) perform clock throttling control.

[**0046**] The setting in the mode register of register block **66** controls the state of switches **60** to switch the special purpose circuit **40** between the normal computer operation mode with switches **60** closed (e.g., running Microsoft Windows® OS) and the mode of a system consistent with the present invention, with switches **60** open (running the mini-OS) to play compressed audio files.

South Bridge AC97 Controller **50** Interface (AC $Link_1$ from Host)

[**0047**] During the normal computer operation mode, switches **60** are closed with the South Bridge AC97 Controller **50** interface connected directly through, closed switches **60**, to AC97 Codec **42** to generate audio output as if special purpose circuit **40** were not present. To play compressed audio files, switches **60** are open when the mini-OS is running, and state machine **64** controls AC97 Codec **42**.

AC97 Codec Interface (AC $Link_2$ to AC97 Codec **42**)

[**0048**] When the computer is running under control of the mini-OS, switches **60** are open. State machine **64** then controls the AC_link_2 in response to the settings of the register block **66** set by the host (CPU **26**) to generate the controls for AC97 Codec **42** (e.g., switching the sampling frequency, controlling volume, sending the PCM data to the Codec **42**, setting the Codec **42** to the power saving mode or waking Codec **42** from the power saving mode).

Function Key Input Interface **68**

[**0049**] Function key interface **68** receives the user selections from function keys **48** and stores the selections in internal registers to be read by CPU **26**.

LCD interface **72**

[**0050**] LCD interface **72** is only necessary if LCD **34** is used to provide status information to the user. The purpose, when used, is to show player status on low cost LCD **34** when the system consistent with the present invention is used. Status of the audio track number of the selection playing, status icons (e.g., Play) and other generic status icons may be programmed into the system and displayed for any other purpose.