HIGH EFFICIENCY GAMING MACHINE

Inventors: Michael J. Mitchell, Las Vegas, NV (US); Frank Anderson, Las Vegas, NV (US)

Correspondence Address:
BROWN RAYSMAN MILLSTEIN FELDER & STEINER, LLP
1880 CENTURY PARK EAST
12TH FLOOR
LOS ANGELES, CA 90067 (US)

Assignee: Bally Gaming, Inc.

Abstract

An energy efficient gaming machine includes a cabinet housing, one or more buttons positioned on the cabinet that are illuminated with light emitting diodes. The energy efficient gaming machine also includes one or more displays illuminated with one or more cold cathode lights, one or more light emitting diodes, or a combination thereof.
HIGH EFFICIENCY GAMING MACHINE

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BACKGROUND SUMMARY

Briefly, and in general terms, various embodiments are directed to energy efficient gaming machines. In one embodiment, the energy efficient gaming machine comprises a cabinet housing a game, one or more buttons and one or more displays positioned on the cabinet. The buttons are illuminated with one or more light emitting diodes. The displays are illuminated with one or more light emitting diodes, one or more cold-cathode lights, or a combination thereof. In another embodiment, the energy efficient gaming machine comprises a cabinet having a reduced depth. Additionally, the energy efficient gaming machine includes one or more energy efficient computer components that are placed in an idle mode when not in use.

In another embodiment, methods of reducing energy consumption of a gaming machine are disclosed herein. One method includes providing a gaming machine with energy efficient displays and idling the computer components of the game after a predetermined period of inactivity.

Other features of the embodiments disclosed in this specification will become apparent from the following detailed description, taken in conjunction with the accompanying drawings, which illustrate by way of example, the features of energy efficient gaming machines.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a front perspective view of one embodiment of an energy efficient gaming machine;

FIG. 2 is a front perspective view of one embodiment of an energy efficient gaming machine; and

FIG. 3 is a front perspective view of one embodiment of an energy efficient gaming machine.

DETAILED DESCRIPTION

Various embodiments disclosed herein are directed to energy efficient gaming machines. The energy efficient gaming machines include energy efficient lighting for the illuminated displays or features of the gaming machine. These energy efficient lights include, but are not limited to, light emitting diodes (LEDs) and cold cathode lights. As those skilled in the art will appreciate, LEDs are solid-state semiconductors that emit light as a material is exposed to an electrical field. As a solid-state device, LEDs exhibit reliability, durability, and a long lifetime (average lifetime approximately 100,000 hours). Cold cathode lights are tubular lights illuminated by passing an electrical current through a gas or vapor. Cold cathode lights are energy efficient and do not emit large amounts of heat. Furthermore, cold cathode lights have a substantial longevity and can generally last approximately 50,000 hours. Accordingly, energy efficient gaming machines having LEDs or cold cathode lights require less maintenance because these lights have a longer lifespan as compared to traditional incandescent, neon, or fluorescent lights.

Additionally, the gaming machine may include one or more energy efficient computer components such as, but not limited to, a computer processor, hard drive, graphics processing unit, power supply, motherboard voltage regulator, or any combination thereof. In one embodiment, the components are placed in an idle mode when not in use. By utilizing energy efficient components, the gaming machines are cost effective in terms of operating and maintaining the devices. For instance, energy efficient gaming machines do not generate as much heat energy thereby reducing cooling costs for casinos. Additionally, these energy efficient gaming machines allow for smaller gaming machines, which increases the number of machines that may be placed in a given area. Furthermore, certain players may be attracted to and more likely to play “environmentally friendly” gaming machines.

Referring now to FIG. 1, there is shown one embodiment of an energy efficient gaming machine. The gaming machine includes a cabinet that houses one or more games. In various embodiments, the games may be mechanical slots, video slots, video poker, video blackjack, video keno, lotteries, or any combination thereof. The cabinet houses one or more displays for the game. In one embodiment, the displays are openings that show the mechanical reels for a slot machine. In another embodiment, the display may be a CRT or a panel display such as, but not limited to, a liquid crystal, plasma, electroluminescent, vacuum fluorescent, field emission, or any other type of panel display known or developed in the art.

In one embodiment, the cabinet is a self-standing unit that is generally rectangular in shape. However, it is appreciated that any shaped gaming cabinet may be used. In another embodiment, the cabinet may be a table top-style gaming cabinet. Referring back to FIG. 1, the cabinet has a reduced depth (d) as a result of utilizing energy efficient lights and computer components. Specifically, the length of the side walls of the cabinet is shorter than the side walls of traditional gaming machines. The shorter length of the side walls results in a gaming cabinet having a reduced depth than conventional gaming machines. These energy efficient components also minimize heat generation thereby allowing for the smaller cabinet size, as a large volume of space is not required for cooling the components. Accordingly, using one or more of the slim cabinets to house a gaming machine, a player may increase the remaining flexibility in a given area. In another embodiment, a gaming cabinet may be a traditional gaming machine cabinet that has energy efficient lights originally installed therein or retrofitted.

Again, as shown in FIG. 1, the cabinet includes a coin tray positioned at the base of the cabinet, a mechanical lever to actuate the reels, and a convenience light positioned on top of the cabinet. The convenience light is generally used to notify casino personnel that the patron or the gaming machine needs attention. For instance, the light may flash when a player has won a jackpot or the
light may be constantly lit if a patron has requested service. In one embodiment, the convenience light 20 is illuminated with one or more LEDs. In another embodiment, the convenience light 20 is illuminated with one or more cold cathode lights. [0013] The cabinet 11 also includes a “top glass” area 12 and a “belly glass” area 17 to hold displays (not shown) for the gaming machine 10. In one embodiment, the top glass area 12 or belly glass area 17 may include the title of the game. In another embodiment, the top glass area 12 may include one or more payout tables for winning combinations. In yet another embodiment, at least one of the top glass area 12 and the belly glass area 17 display some type of advertising. In the embodiment shown in FIG. 1, the top glass area 12 is shown with two cold cathode lights 13 and the belly glass area 17 is shown with one cold cathode light. As those skilled in the art will appreciate, the top glass area 12 and the belly glass area 17 can have any number of cold cathode lights 13. As shown in FIG. 1, the cold cathode lights 13 are generally straight tubes. Alternatively, in other embodiments, the cold cathode light tubes are bent into any shape or desired configuration known or developed in the art. Optionally, in another embodiment, the cold cathode lights 13 can have any light color known or developed in the art. In another embodiment, the top glass area 12 and/or the belly glass area 17 can include one or more LEDs in addition to one or more cold cathode lights 13. [0014] As shown in FIG. 1, the cabinet 11 includes a playing deck 15 that houses a plurality of buttons 16. Generally, the buttons 16 are made of plastic or other material and include markings to denote the function of the buttons 16. For instance, these markings may include, but are not limited to, “spin”, “max bet”, “1 line”, “3 lines”, “5 lines”, or the like. In one embodiment, the buttons 16 are backlit with one or more LEDs. Accordingly, when a button 16 is depressed, the button is lit by the LEDs. When the game is in an idle state, the buttons 16 may be lit by the LEDs; alternatively, the buttons 16 may intermittently flash in other embodiments. [0015] Of course, one of ordinary skill in the art will appreciate that not all gaming machines 10 will have all these components and may have other components in addition to or in lieu of those components mentioned here. Furthermore, while these components are viewed and described separately, various components may be a single unit in some embodiments. [0016] In another embodiment, the gaming machine 10 includes one or more energy efficient components. These energy efficient components include, but are not limited to, a central processing unit (CPU), hard drive, graphics processing unit, power supply, motherboard voltage regulator, cooling fan, or a combination thereof. In one embodiment, the CPU has an idle mode (i.e., time when the processor is not in use) of approximately 50 W to 100 W. As those skilled in the art will appreciate, CPUs having lower idle parameters are more efficient and use less electricity. Furthermore, the more readily the CPU enters an idle mode the more energy efficient the system. [0017] In another embodiment, the energy efficient component is the internal power supply. In one embodiment, the power supply is at least 70% efficient at various different rated outputs (e.g., 20%, 50%, and 100%). As those skilled in the art will appreciate, a power supply having a greater efficiency rating at different rated outputs can be used in the gaming machine. [0018] In one embodiment, the energy efficient component is the motherboard voltage regulator. The motherboard voltage regulator converts input voltages from the power supply to the various voltages required by the CPU. Accordingly, the efficiency at which the motherboard voltage regulator converts the input voltages can affect the overall gaming machine efficiency. In one embodiment, the motherboard voltage regulator is at least approximately 75% to approximately 85% efficient. In another embodiment, the motherboard voltage regulator is approximately 90% efficient. As those skilled in the art will appreciate, it is contemplated that the motherboard voltage regulator may have varying efficiencies from those specifically disclosed herein, but it is desirable to have a highly efficient component that is cost-effective. [0019] In yet another embodiment, the energy efficient component is the graphics processing unit (GPU). In one embodiment, the GPU would have a low energy usage during an idle phase. In another embodiment, the GPU includes a dynamic power management feature that allows for near-time control of power consumption while the component is operating. For instance, the amount of power supplied to a component may be minimized during a brief idle period or during execution of tasks that require lower power or performance. As those skilled in the art will appreciate, dynamic power management feature may be used for other components such as, but not limited to, the CPU. [0020] When the components are not in use after a period of inactivity, the component can be placed in an idle mode where the component utilizes very little energy. For instance, if the game is not in use, the hard drive and the CPU or GPU are placed in an idle mode to conserve energy. In another embodiment, the gaming machine 10 may include flash memory or other solid-state, nonvolatile, memory such as, but not limited to EPROM, EEPROM, or DRAM. The flash memory includes data and instructions to operate the “attract mode” of the gaming machine 11 thereby permitting the computer processor, hard drive, and graphics processing units to be idled when a game is not played. That is, the flash memory can control the various features such as sound, lights, or animation to attract players to a gaming machine. [0021] The various embodiments described above are provided by way of illustration only and should not be construed to limit the invention. Those skilled in the art will readily recognize various modifications and changes that may be made to the claimed invention without following the example embodiments and applications illustrated and described herein, and without departing from the true spirit and scope of the claimed invention, which is set forth in the following claims.

What is claimed is:
1. An energy efficient gaming machine, comprising:
   a cabinet housing;
   one or more buttons positioned on the cabinet, wherein the buttons are illuminated with one or more light emitting diodes; and
one or more displays on the cabinet illuminated with one or more light emitting diodes, one or more cold-cathode lights, or a combination thereof.

2. The energy efficient gaming machine of claim 1, wherein the displays are a top glass, a belly glass, or a combination thereof.

3. The energy efficient gaming machine of claim 1, further comprising one or more convenience lights illuminated with one or more light emitting diodes.

4. The energy efficient gaming machine of claim 1, further comprising one or more computer components, wherein at least one computer component is placed in an idle mode when not in use.

5. The energy efficient gaming machine of claim 4, wherein the computer component is a computer processor unit, hard drive, graphics processing unit, power supply, motherboard voltage regulator, cooling fan, or a combination thereof.

6. An energy efficient gaming machine, comprising:
   a slim cabinet housing;
   one or more buttons positioned on the slim cabinet housing, wherein one or more buttons are illuminated with one or more light emitting diodes;
   one or more displays positioned on the slim cabinet housing, wherein the displays are illuminated with one or more cold cathode lights, one or more light emitting diodes, or a combination thereof; and
   one or more energy efficient computer components, wherein the computer components are placed in an idle mode when not in use.

7. The energy efficient gaming machine of claim 6, wherein the displays are a top glass, a belly glass, or a combination thereof.

8. The energy efficient gaming machine of claim 6, further comprising one or more convenience lights, wherein the convenience lights are illuminated with one or more light emitting diodes.

9. The energy efficient gaming machine of claim 6, wherein the computer component is a computer processor unit, hard drive, graphics processing unit, power supply, motherboard voltage regulator, or a combination thereof.

10. A method of reducing energy consumption by a gaming machine, comprising:
   providing a gaming machine comprising energy efficient lighting; and
   idling one or more computer components provided in the gaming machine after a period of inactivity.

11. The method of claim 10, wherein the energy efficient lighting is one or more light emitting diodes, one or more cold cathode lights, or a combination thereof.

12. The method of claim 10, wherein the one or more computer components are a processor, hard drive, graphics processing unit, power supply, motherboard voltage regulator, or a combination thereof.

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