GAMING SYSTEM AND GAME SERVER

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ABSTRACT

A gaming system includes: a plurality of gaming machines that provide games to respective players; and a game server that includes: a communication unit that is communicably connected to the gaming machines; and a main controller that operates to: determine symbols to be respectively displayed on each of the gaming machines from among a plurality of symbols when determined that at least one of the gaming machines is in a predetermined gaming state; and control at least one of the gaming machines through the communication unit to provide a first prescribed amount of game medium when a combination of the determined symbols satisfies a predetermined combination.
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<tr>
<th>CODE NO. DATA</th>
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<th>3RD REEL SYMBOL ARRAY</th>
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<td>WINNING COMBINATION</td>
<td>NUMBER OF PAYOUT COINS</td>
<td>NUMBER OF BETS: 1</td>
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**FIG. 9A**

**WINNING THE GAME**

<table>
<thead>
<tr>
<th>SLOT MACHINE</th>
<th>DATA STORAGE AREA</th>
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<tbody>
<tr>
<td>FIRST SLOT MACHINE</td>
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<tr>
<td>SECOND SLOT MACHINE</td>
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</tr>
<tr>
<td>THIRD SLOT MACHINE</td>
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<tr>
<td>FOURTH SLOT MACHINE</td>
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</tr>
<tr>
<td>FIFTH SLOT MACHINE</td>
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</table>

**FIG. 9B**

**LOSING THE GAME**

<table>
<thead>
<tr>
<th>SLOT MACHINE</th>
<th>DATA STORAGE AREA</th>
</tr>
</thead>
<tbody>
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<td>FIRST SLOT MACHINE</td>
<td>4</td>
</tr>
<tr>
<td>SECOND SLOT MACHINE</td>
<td>8</td>
</tr>
<tr>
<td>THIRD SLOT MACHINE</td>
<td>16</td>
</tr>
<tr>
<td>FOURTH SLOT MACHINE</td>
<td>8</td>
</tr>
<tr>
<td>FIFTH SLOT MACHINE</td>
<td>19</td>
</tr>
<tr>
<td>Winning Combination</td>
<td>First Slot Machine</td>
</tr>
<tr>
<td>---------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>SEVEN</td>
<td>7</td>
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<tr>
<td>LOSE</td>
<td>7</td>
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<tr>
<td>CHERRY</td>
<td>7</td>
</tr>
<tr>
<td>OTHERS</td>
<td>7</td>
</tr>
</tbody>
</table>
**FIG. 12**

1. **TURN ON POWER**
2. **READ OUT AUTHENTICATED GAME PROGRAM AND GAME SYSTEM PROGRAM FROM MEMORY CARD AND STORE THEM IN RAM (S1)**
3. **READ OUT PAYOUT RATE SETTING DATA FROM GAL AND STORE IT IN RAM (S2)**
4. **PERFORM INITIALIZATION PROCESS FOR COMPLETION OF EACH GAME (S3)**
5. **PERFORM START CHECKING PROCESS (S4)**
6. **PERFORM INTERNAL LOTTERY PROCESS (S5)**
7. **PERFORM REEL CONTROL PROCESS (S6)**
8. **PAYOUT COINS DETERMINING PROCESS (S7)**
9. **FREE GAME TRIGGER IS ACHIEVED? (S8)**
   - **NO**
   - **YES**
10. **PERFORM FREE GAME (S9)**
11. **PERFORM COIN PAYOUT PROCESS (S10)**
FIG. 13

START CHECKING PROCESS START

S11

COIN INSERTION IS DETECTED

YES → UPDATE CREDIT COUNTER S12

S13

CREDIT COUNTER IS ZERO?

NO → ALLOW RECEPTION OF BET SWITCH OPERATION S14

NO → OPERATION OF BET SWITCH IS DETECTED?

YES → UPDATE BET COUNTER AND CREDIT COUNTER ON BASIS OF OPERATED BET SWITCH S16

S17

BET COUNTER REACHED MAXIMUM?

NO → PROHIBIT UPDATE OF BET COUNTER S18

S19

ALLOW RECEPTION OF SPIN SWITCH OPERATION

NO → OPERATION OF SPIN SWITCH IS DETECTED?

YES → TRANSMIT BET DATA S21

COMPLETE START CHECKING PROCESS
FIG. 14

START INTERNAL LOTTERY PROCESS

EXTRACT RANDOM NUMBER S41

DETERMINE STOP SYMBOLS TO BE STOPPED IN SYMBOL DISPLAY AREAS BY LOOKING UP INTERNAL LOTTERY TABLE AND STORE STOP SYMBOLS IN SYMBOL STORAGE AREA S42

WINNING COMBINATION OF "7" IS WON S43

NO

YES

TRANSMIT JACKPOT REQUEST DATA S44

COMPLETE INTERNAL LOTTERY PROCESS
FIG. 15

START REEL CONTROL PROCESS

PERFORM SCROLL CONTROL PROCESS S51

NO

STOP TIMER FOR REEL ROTATION IS ZERO S52?

YES

PERFORM SCROLL STOP CONTROL PROCESS S53

COMPLETE REEL CONTROL PROCESS
FIG. 16

START PAYOUT COINS DETERMINING PROCESS

DETERMINE NUMBER OF PAYOUT COINS

ADD NUMBER TO PAYOUT COUNTER

COMPLETE PAYOUT COINS DETERMINING PROCESS

S61

S62
FIG. 17

1. START FIRST JACKPOT LOTTERY PROCESS

2. TRANSMIT JACKPOT REQUEST DATA

3. EXTRACT RANDOM NUMBER

4. DETERMINE SIMULTANEOUS DISPLAY SYMBOLS OF SLOT MACHINES BY LOOKING UP INTERNAL LOTTERY TABLE AND STORE SIMULTANEOUS DISPLAY SYMBOLS IN SIMULTANEOUS DISPLAY SYMBOL STORAGE AREA

5. WINNING COMBINATION IS WON?

   YES: CALCULATE JACKPOT DISTRIBUTED AMOUNTS

   NO: FILTER WINNING COMBINATION

6. TRANSMIT SIMULTANEOUS DISPLAY SYMBOL DATA AND JACKPOT DISTRIBUTED AMOUNT DATA

7. TRANSMIT SYMBOL DATA TO SLOT MACHINES

8. COMPLETE FIRST JACKPOT LOTTERY PROCESS
FIG. 18

SIMULTANEOUS DISPLAY PROCESS

SAVE REGISTER

STORE RECEIVED SYMBOL DATA

PERFORM SIMULTANEOUS SCROLL CONTROL PROCESS

REEL ROTATION STOP TIMER IS ZERO?

YES

PERFORM SIMULTANEOUS SCROLL STOPPING CONTROL PROCESS

RESTORE REGISTER

COMPLETE SIMULTANEOUS DISPLAY PROCESS
FIG. 23

START SECOND JACKPOT LOTTERY PROCESS

EXTRACT RANDOM NUMBER

S121

DETERMINE SIMULTANEOUS DISPLAY SYMBOLS OF SLOT MACHINES BY LOOKING UP INTERNAL LOTTERY TABLE AND STORE SIMULTANEOUS DISPLAY SYMBOLS IN SIMULTANEOUS DISPLAY SYMBOL STORAGE AREA

S122

WINNING COMBINATION IS WON?

S123

YES

CALCULATE JACKPOT DISTRIBUTED AMOUNTS

S124

TRANSMIT SIMULTANEOUS DISPLAY SYMBOL DATA AND JACKPOT DISTRIBUTED AMOUNT DATA

S125

TRANSMIT SYMBOL DATA TO SLOT MACHINES

S126

COMPLETE SECOND JACKPOT LOTTERY PROCESS
GAMING SYSTEM AND GAME SERVER

CROSS-REFERENCE TO THE RELATED APPLICATION(S)

[0001] The present application is based upon and claims priority from prior Japanese Patent Application No. 2006-352213, filed on Dec. 27, 2006, the entire content of which are incorporated herein by reference.

TECHNICAL FIELD

[0002] The present invention relates to a gaming system and a game server.

BACKGROUND

[0003] In slot machines, when symbols displayed on winning lines (active pay lines) satisfies a predetermined combination, predetermined numbers of coins, bills, or the like are paid out. An example of a conventional slot machine is disclosed in U.S. Pat. No. 7,037,191. In a gaming system having a plurality of the slot machines, slot games are performed independently in each of the slot machines.

[0004] Although players can enjoy slot games individually in a conventional gaming system, players are difficult to pay attention to slot games played by other players. Thus, it is difficult for plurality of players to enjoy games with the feeling of solidarity, and consideration for entertaining features in the games is insufficient in the conventional gaming system.

SUMMARY

[0005] One of objects of the present invention is to provide a gaming system and a game server having entertaining features that are completely new to the known technologies.

[0006] According to a first aspect of the invention, there is provided a gaming system including: a plurality of gaming machines that provide games to respective players; and a game server that includes: a communication unit that is communicably connected to the gaming machines; and a main controller that operates to: determine symbols to be respectively displayed on each of the gaming machines from among a plurality of symbols when determined that at least one of the gaming machines is in a predetermined gaming state; and control at least one of the gaming machines through the communication unit to provide a first prescribed amount of game medium when a combination of the determined symbols satisfies a predetermined combination.

[0007] According to a second aspect of the invention, there is provided a gaming system including: a plurality of gaming machines that provide games to respective players; and a game server that includes: a communication unit that is communicably connected to the gaming machines; and a main controller that operates to: determine symbols to be respectively displayed on each of the gaming machines from among a plurality of symbols when determined that a predetermined time condition is satisfied; and control at least one of the gaming machines through the communication unit to provide a first prescribed amount of game medium when a combination of the determined symbols satisfies a predetermined combination.

[0008] According to a third aspect of the invention, there is provided a game server including: a communication unit that is communicably connected to a plurality of gaming machines that provide games to respective players; and a main controller that operates to: determine symbols to be respectively displayed on each of the gaming machines from among a plurality of symbols when determined that at least one of the gaming machines is in a predetermined gaming state; and control at least one of the gaming machines through the communication unit to provide a first prescribed amount of game medium when a combination of the determined symbols satisfies a predetermined combination.

[0009] According to a fourth aspect of the invention, there is provided a game server including: a communication unit that is communicably connected to a plurality of gaming machines that provide games to respective players; and a main controller that operates to: determine symbols to be respectively displayed on each of the gaming machines from among a plurality of symbols when determined that a predetermined time condition is satisfied; and control at least one of the gaming machines through the communication unit to provide a first prescribed amount of game medium when a combination of the determined symbols satisfies a predetermined combination.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] In the accompanying drawings:

[0011] FIGS. 1A and 1B are diagrams showing a state in which a simultaneous display process has been performed in slot machines according to an embodiment of the present invention, wherein FIG. 1A is a diagram showing a state in which simultaneous scroll images are displayed in the slot machines, and wherein FIG. 1B is a diagram showing a state in which symbols displayed in the slot machines are identical to one another;

[0012] FIG. 2 is a block diagram showing a gaming system according to the embodiment;

[0013] FIG. 3 is a perspective view showing the overall configuration of a slot machine according to the embodiment;

[0014] FIG. 4 is a block diagram of the slot machine with primarily focusing on the internal configuration thereof;

[0015] FIG. 5 is a block diagram showing an example of the internal configuration of an image control circuit;

[0016] FIG. 6 is a diagram showing a symbol array table for a slot game in which symbols to be displayed in a symbol display area of each slot machine and code number data are in correspondence with each other;

[0017] FIG. 7 is a diagram showing an example of a winning combination determining table;

[0018] FIG. 8 is a diagram showing a simultaneous display symbol array table in which symbols to be displayed in a main display of each slot machine and code number data are in correspondence with each other;

[0019] FIGS. 9A and 9B are diagrams showing an example of a symbol storage area of a game server, wherein FIG. 9A shows a case where a jackpot has been won, and wherein FIG. 9B shows a case where the jackpot has not been won;

[0020] FIG. 10 is a diagram showing an example of a jackpot winning determining table;

[0021] FIG. 11 shows an operation sequence of a gaming system according to a first embodiment of the present invention and is a sequence diagram with primarily focusing on data transmission and data reception;

[0022] FIG. 12 is a flowchart showing an operation flow of a main control process that is repeatedly performed by a main CPU after power is turned on;

[0023] FIG. 13 is a flowchart showing an operation sequence of a start checking process;
FIG. 14 is a flowchart showing an operation sequence of an internal lottery process;

FIG. 15 is a flowchart showing an operation sequence of a reel control process;

FIG. 16 is a flowchart showing an operation sequence of a payout coins determining process;

FIG. 17 is a flowchart showing an operation sequence of a first jackpot lottery process;

FIG. 18 is a flowchart showing an operation sequence of a simultaneous display process;

FIGS. 19A and 19B are diagrams showing an example of an image displayed in a main display in a slot game, wherein FIG. 19A is a diagram showing scroll images, and wherein FIG. 19B is a diagram showing symbol images;

FIGS. 20A and 20B are diagrams showing an image displayed in a main display by a simultaneous display process, wherein FIG. 20A is a diagram showing a simultaneous scroll image, and wherein FIG. 20B is a diagram showing a symbol image displayed by the simultaneous display process;

FIGS. 21A and 21B are diagrams showing a state in which a simultaneous display process has been performed in slot machines according to the embodiment, wherein FIG. 21A is a diagram showing scroll images displayed in the slot machines, and wherein FIG. 21B is a diagram showing a case where symbols displayed in the slot machines are not identical;

FIG. 22 shows an operation sequence of a gaming system according a second embodiment and is a sequence diagram with primarily focusing on data transmission and data reception; and

FIG. 23 is a flowchart showing an operation sequence of a second jackpot lottery process.

DETAILED DESCRIPTION

Hereinafter, an embodiment of the present invention will be described in detail with reference to the accompanying drawings.

Overall Description of Gaming System

FIGS. 1A and 1B are diagrams showing a state in which a simultaneous display process has been performed in slot machines 1A to 1E according to the embodiment. In slot machines 1A to 1E provided in a gaming system 100 (see FIG. 2), independent slot games are performed. When the slot machines 1A to 1E are in a predetermined gaming state, a game server 200 (see FIG. 2) performs a jackpot lottery process. The game server 200 transmits simultaneous display symbol data d3 (see FIG. 11) for the simultaneous display process to the slot machines 1A to 1E. Then, the slot machines 1A to 1E stop slot games and display a simultaneous scroll image G1 (see FIG. 1A) on a main display 3. Thereafter, when a jackpot has been won, the slot machines 1A to 1E, for example, display “?” symbols G6 (see FIG. 1B), and payout operations in accordance with the amount of jackpot distribution are performed in the slot machines 1A to 1E.

According to the gaming system 100 having the slot machines 1A to 1E and the game server 200, when the simultaneous display process is performed, players of the slot machines 1A to 1E pay attention to the symbols displayed in the slot machines 1A to 1E together, and thereby the players can enjoy games while having the feeling of solidarity. In addition, the players can acquire coins paid out on the basis of a combination of the symbols (for example, Seven symbols G6) displayed in the slot machines 1A to 1E, and accordingly, the degree of satisfaction of the players for the result of the games increases. Accordingly, the players can enjoy a new entertaining feature in addition to existing entertaining features.

Configuration of Gaming System

First, the configuration of the gaming system 100 according to the embodiment will be described with reference to FIG. 2. FIG. 2 is a block diagram showing the gaming system 100 according to the embodiment. The gaming system 100 has first to fifth slot machines 1A to 1E, each of which serving as a gaming machine, and a game server 200 that is connected to the slot machines 1A to 1E for transmission of data therebetween. In the gaming system 100, machine IDs are assigned to the slot machines 1A to 1E such that the slot machines can be identified from one another by the machine IDs.

Configuration of Game Server

The game server 200 has a CPU 201, which serves as a controller, a ROM 202, and a RAM 203. The game server 200 has a communication processing unit 204 that is connected to the CPU 201 through an I/O port 207, a communication control unit 205, and a memory unit 206. The game server 200 has a random number generator 211, a sampling circuit 210, a clock pulse generating circuit 212, and a frequencydivider 213.

The CPU 201 operates in accordance with a gaming system program and controls the overall operation of the game server 200 by sending/receiving signals to/from other components through the I/O port 207. In the ROM 202, programs such as a BIOS executed by the CPU 201 and permanent data are stored. In the RAM 203, data or programs used for the operation of the CPU 201 are stored. In the RAM 203, at least the gaming system program is stored.

A jackpot determination table 93 (see FIG. 10) and a jackpot counter are stored in the RAM 203.

The jackpot determination table 93 is a table which is looked up when the CPU 201 performs an operation for jackpot determination. The jackpot determination table 93 has a symbol data area 93a for storing combinations of symbols displayed in the first to fifth slot machines 1A to 1E, a winning combination area 93b, and a lottery result area 93c. The areas 93a, 93b, and 93c are stored in association with one another. In the jackpot determination table 93, winning combinations of symbols are defined. When a combination of symbols displayed in the first to fifth slot machines 1A to 1E corresponds to one of the winning combinations in the jackpot determination table 93, the jackpot is won. For example, when the combination of the symbols is “Bell”; “Bell”; “Bell”; “Bell”; and “Bell”, it corresponds to a winning combination of “Bell”, and the jackpot is won.

When the jackpot is won, coins corresponding to the amount of the jackpot which is a variable amount are paid out. The coins serves as game media according to the present invention. The amount of the jackpot is an amount resulting from accumulating parts of bet amounts (usage amounts of game media used in the games) in the slot machines 1A to 1E at a predetermined accumulation rate (for example, 5%) for each game. The amount of the jackpot is counted as needed by the jackpot counter stored in the RAM 203 of the above-described game server 200. When the combination of the...
symbols corresponds to one of the winning combinations and the jackpot is won, coins corresponding to the amount of the jackpot that has been accumulated by that time are paid out. In the embodiment, the amount of the jackpot is divided for five slot machines 1A to 1E, and the divided amounts are paid out from the slot machines 1A to 1E.

0043 The communication control unit 205 operates in accordance with a direction of the CPU 201 and controls connection or disconnection of a line for communication with the slot machine 1A. The communication processing unit 204 operates in accordance with a direction of the communication control unit 205 and performs transmission or reception of data.

0044 The random number generator 211 operates in accordance with a direction of the CPU 201 and generates random numbers in a predetermined range. The sampling circuit 210 extracts an arbitrary random number from among the random numbers generated by the random number generator 211 and inputs the extracted random number to the CPU 201. The clock pulse generating circuit 212 generates a reference clock for operating the CPU 201, and the frequency divider 213 inputs a signal divided by a predetermined period to the CPU 201.

Configuration of Slot Machine

0045 Next, the configuration of the slot machines 1A to 1E will be described. As an example, the configuration of the slot machine 1A will be described. FIG. 3 is a perspective view showing the overall configuration of the slot machine 1A. Other slot machines 1B to 1E have the same configuration as the first slot machine 1A, and descriptions of each element of the slot machines 1B to 1E will be omitted by attaching a same reference numeral as that of the first slot machine 1A thereto.

0046 The slot machine 1A is configured to perform a slot game by using a scroll image of a plurality of symbols. The slot machine 1A has a base game mode and a bonus game mode. In the base game mode, the slot machine 1A receives a bet operation from a player and performs a slot game on a condition that a coin is used. In the bonus game mode, the slot machine 1A automatically performs a slot game (hereinafter, referred to as a free game) without receiving the bet operation from the player. When a predetermined condition is satisfied in the base game mode, the slot machine 1A proceeds to the bonus game mode for performing the free game.

0047 The slot machine 1A has a cabinet 2 that is used for housing electronic or mechanical components for performing the slot game. On the front side of the cabinet 2, a main display 3 including an LCD (Liquid Crystal Display) is provided. In addition, a sub-display 4 constituted by an LCD is provided on the upper side of the main display 3.

0048 As shown in FIG. 3, in the approximately center of a screen of the main display 3, three symbol display areas 3A, 3B, and 3C are aligned in one row horizontally. In the symbol display areas 3A, 3B, and 3C, scroll images g1 (moving pictures displayed as if a mechanical reel rotates), in which a plurality of types of symbols look as if they move from the upside toward the downside, are displayed in both the ordinary gaming mode and the special gaming mode (see FIG. 19A). In FIGS. 19A and 19B, the scroll images g1 are represented as downward arrows.

0049 The symbols displayed in the symbol display areas 3A, 3B, and 3C are as shown in a slot game symbol array table 94 shown in FIG. 6.

0050 In other words, in the symbol area 3A located on the left side, a group of symbols shown in a symbol array 94a of the first reel is repeatedly scrolled to be displayed from the upper side. After the scroll display is performed, one symbol of the symbol array in the first reel is stopped to be displayed in the symbol display area 3A.

0051 Similarly, in the symbol area 3B located in the center, a group of symbols shown in a symbol array 94b of the second reel is repeatedly scrolled to be displayed from the upper side, and in the symbol area 3C located on the right side, a group of symbols shown in a symbol array 94c of the third reel is repeatedly scrolled to be displayed from the upper side, so that one of each symbol array is stopped to be displayed in each symbol display area 3B or 3C.

0052 In the upper end of the main display 3, a jackpot display area 3J indicating the current amount of the jackpot is provided. In the jackpot display area 3J, the amount of the jackpot accumulated by the above described jackpot counter of the game server 200 is displayed.

0053 As shown in FIG. 20, in the main display 3 in a case of the simultaneous display process to be described later, a simultaneous symbol display area 3E is provided instead of the symbol display areas 3A, 3B, and 3C such that the simultaneous symbol display area substantially occupies the whole screen thereof. When the simultaneous display process (see FIG. 18), to be described later, is started, the simultaneous scroll image G1 is displayed in the simultaneous symbol display area 3E (see FIG. 20A). The simultaneous scroll image G1 is an image (moving pictures displayed as if a mechanical reel rotates) in which a plurality of types of symbols look as if they move from the upside toward the downside. When the simultaneous display process is started, the whole first to fifth slot machines 1A to 1E display the simultaneous scroll image G1 (see FIGS. 1A and 21A). In FIGS. 1A and 20A, the simultaneous scroll image G1 is represented as a downward arrow.

0054 The symbol displayed in the simultaneous symbol display area 3E is as shown in the simultaneous display symbol array table 95 shown in FIG. 8.

0055 In other words, in the simultaneous symbol display area 3E, a group of symbols shown in the symbol array of the simultaneous display symbol array table 95 is repeatedly scrolled to be displayed from the upside thereof. The group of symbols is constituted by a “7” symbol (blue) G2, a “Bell” symbol G3, a “Melon” symbol G4, a “Plum” symbol G5, a “7” symbol G6, a “Cherry” symbol G7, and a “Bar” symbol G8. In the simultaneous symbol display area 3E, one symbol (for example, the “7” symbol G6) of the symbol array in the simultaneous display symbol array table 95 is stopped to be displayed after the scroll display. The size of the symbol stopped to be displayed in the simultaneous symbol display area 3E is larger than that of the symbol stopped in each symbol display area 3A, 3B, or 3C. Thus, the symbol stopped to be displayed in the simultaneous symbol display area 3E is clearly identified from the symbols 3A, 3B, and 3C stopped to be displayed in the symbol display areas. Furthermore, the design (color, shape, or the like) of the symbol stopped in the simultaneous symbol display area 3E may be configured to be different from that of the symbols stopped to be displayed in the symbol display areas 3A, 3B, and 3C such that both type of symbols can be clearly identified from each other.

0056 In the sub-display 4 (see FIG. 3), an award table or an image (for example, a description of contents of the game) relating to the game is displayed. In addition, various effect
images are displayed in the sub-display 4 in accordance with the simultaneous display process.

[0057] In addition, in the slot machine 1A, to the lower side of the main display 3, a pedestal portion 5 that is disposed to be substantially horizontal is provided. In the pedestal portion 5, a coin insertion slot 6, a bill insertion slot 7, a spin switch 8, a 1-BET switch 9, a MAX-BET switch 10, and a CASH-OUT switch 11 are provided.

[0058] The coin insertion slot 6 is provided for the player so as to insert coins for betting on the game and has a coin insertion sensor 6a (see FIG. 4) that outputs a signal indicating insertion of a coin. The bill insertion slot 7 is provided for the player to perform an operation for starting a slot game by displaying a scroll image of symbols. The 1-BET switch 9 is provided so as to place a bet of one coin per one time of the bet operation. The MAX-BET switch 10 is provided so as to place a bet of maximum coins that can be betted on one game. The CASH-OUT switch 11 is an operation button that is used for paying coins corresponding to the credits in a coin receiving tray 14.

[0059] In addition, in the slot machine 1A, in a lower portion of the cabinet 2, a coin payout port 13 and the coin receiving tray 14 for storing paid-out coins are provided. In addition, speakers 12L and 12R are provided to left and right sides of the coin payout port 13.

[0060] FIG. 4 is a block diagram of the slot machine 1A with primarily focusing on the internal configuration thereof. The slot machine 1A has a plurality of components and has a gaming board 20 and a motherboard 40 as its primary components.

[0061] The gaming board 20 has a CPU 23 and a boot ROM 21 which are interconnected with an internal bus 24 and card slots 22a and 22b corresponding to a memory card 27 and a GAL 28. The gaming board 20 is a device used for retrieving a game program and a gaming system program, which will be described later, from the memory card 27 into the motherboard 40. The gaming board 20 is a device used for retrieving payout setting data from the GAL 28 into the motherboard 40.

[0062] The CPU 23 and a boot ROM 21 which are interconnected with the internal bus 24 are connected to the motherboard 40 through a PCI bus 25. The PCI bus 25 performs signal transmission between the motherboard 40 and the gaming board 20 and supplies power from the motherboard 40 to the gaming board 20. In the boot ROM 21, an authentication program, a preliminary authentication program, a program (boot code), not shown in the figure, used by the CPU 23 for booting (starting) the preliminary authentication program, and the like, which will be described later, are stored.

[0063] The authentication program is described in an order of checking and verifying no modification of game information to be authenticated, that is, a sequence (authentication order) of authenticating the game information. The authentication program is a program used for authenticating the game program and the gaming system program, which are supplied to the slot machine 1A from the memory card 27, by a CPU 32 to be described later. Since this authentication program checks that no modification is made in the game program and the gaming system program, the authentication program is also referred to as a modification checking program.

[0064] The preliminary authentication program is described in an order of checking and verifying no modification of the authentication program, that is, a sequence (authentication order) of authenticating the authentication program. The preliminary authentication program is used for authenticating the authentication program that authenticates the game program and the gaming system program. This preliminary program is executed by the CPU 23.

[0065] The card slot 22a is connected to the motherboard 40 through an IDE bus 26a. This card slot 22a is configured to be connectable to the memory card 27 such that the game program and the gaming system program which are stored therein can be read out. Thus, the card slot 22a is slot (physical connector) into which a memory card can be inserted.

[0066] The card slot 22b is connected to the motherboard 40 through an IDE bus 26b. This card slot 22b is configured to be connectable to the GAL 28 such that the payout rate setting data stored therein can be read out. Thus, the card slot 22b is a slot (physical connector) into which the GAL 28 can be inserted.

[0067] The motherboard 40 is constituted by a general-purpose motherboard (a printed board on which basic components of a personal computer are built). The motherboard 40 has at least a main CPU (Central Processing Unit) 32, a ROM (Read Only Memory) 34, a RAM (Random Access Memory) 33, and an I/O port 39. In addition, the motherboard 40 has a random number generator 35, a sampling circuit 36, a clock pulse generating circuit 37, and a frequency divider 38. The above-described PCI bus 25 and the IDE buses 26a and 26b are connected to the I/O port 39.

[0068] The main CPU 32 serves as a game controller according to the present invention. The main CPU 32 operates in accordance with the retrieved game program and gaming system program and controls the overall operation of the slot machine 1A by inputting/outputting signals to/from other constituent elements through the I/O port 39.

[0069] In the RAM 33, data or program which is used for the operation of the main CPU 32 is stored and at least the authentication program, the game program, and the gaming system program which are read-out through the gaming board 20 are stored.

[0070] In the ROM 34, a program such as a BIOS program (Basic Input/Output System, a standard BIOS for the motherboard 40) or the like which is executed by the main CPU 32 and permanent data are stored. When the CPU 32 executes the BIOS, an initialization process of predetermined peripheral devices are performed and a retrieval process of the game program and the gaming system program which are stored in the memory card 27 performed through the gaming board 20 is started. As the ROM 34, a memory device such as a flash memory is used. Any type between rewritable and non-rewritable memory devices can be used.

[0071] The random number generator 35 operates in accordance with a direction of the main CPU 32 and generates random numbers in a predetermined range. The sampling circuit 36 extracts an arbitrary random number from among the random numbers generated by the random number generator 35 in accordance with a direction of the main CPU 32 and inputs the extracted random number to the main CPU 32. The clock pulse generating circuit 37 generates a reference clock for operating the main CPU 32, and the frequency divider 38 inputs a signal resulting from dividing the reference clock by a predetermined period to the main CPU 32.
The slot machine 1A has a communication processing unit 81 and a communication control unit 82 which are connected to the main CPU 32 through the I/O port 39. The communication control unit 82 operates in accordance with a direction of the main CPU 32 and controls connection or disconnection of a line for communicating with the game server 200. The communication processing unit 81 operates in accordance with a direction of the communication control unit 82 and performs transmission or reception of data.

The slot machine 1A has a touch panel 3a, a lamp drive circuit 59, a lamp 60, an LED drive circuit 61, an LED 62, a hopper drive circuit 63, a hopper 64, a payout completion signal circuit 65, and a coin detecting unit 66. In addition, the slot machine 1A has an image control circuit 71 and a sound control circuit 72.

The touch panel 3a is configured to cover the screen of the main display 3. The touch panel 3a detects the position of a spot touched by a finger of the player or the like and inputs a position signal corresponding to the detected position to the main CPU 32. By using the touch panel 3a, the player can perform an input operation through a touch operation using the finger of the player or the like.

The lamp drive circuit 59 turns the lamp 60 on or off during a game by outputting a signal for turning on the lamp 63 to the lamp 60. By turning the lamp 60 on or off, representation of the game is performed. The LED drive circuit 61 controls display of the LED 62 by turning it on or off. The LED 62 displays the number of credited coins or the number of acquired coins.

The hopper drive circuit 63 drives the hopper 64 in accordance with control of the main CPU 32. The hopper 64 pays out coins from the payout port 13 to the coin receiving tray 14.

The coin detecting unit 66 counts the number of coins paid out by the hopper 64 and notifies the payout completion signal circuit 65 of the count number data.

The payout completion signal circuit 65 receives the count number data from the coin detecting unit 66. When the count number reaches a set value, the payout completion signal circuit 65 outputs a signal indicating completion of coin payout to the main CPU 32.

The image control circuit 71 displays various images such as a scroll screen of a plurality of symbols, an effect screen for game representation, and a state image for notifying a player of a game state on the main display 3 and the sub-display 4 by controlling image display of the main display 3 and the sub-display 4.

The image control circuit 71, as shown in Fig. 5, has an image control CPU 71a, a work RAM 71b, a program ROM 71c, an image ROM 71d, a video RAM 71e, and a VDP (Video Display Processor) 71f. The image control CPU 71a determines images (a scroll image, an image of a symbol stopped to be displayed after display of the scroll image, a simultaneous screen image, an image stopped to be displayed after display of the simultaneous screen image, or the like) to be displayed on the main display 3 and the sub-display 4 on the basis of a parameter set by the main CPU 32 in accordance with an image control program (relating to display of the main display 3 and the sub-display 4) stored in the program ROM 71c in advance. The work RAM 71b is configured to be temporary storage means that is used when the image control CPU 71a executes an image control program.

In the program ROM 71c, an image control program, various selection tables, and the like are stored. In the image ROM 71d, dot data for forming images is stored. The dot data, for example, includes symbol image data indicating symbols used in a slot game. The video RAM 71e is configured as temporary storage means at a time when the VDP 71f forms an image. The VDP 71f has a control RAM 71g and forms images in accordance with contents of display to be displayed on the main display 3 and the sub-display 4 which are determined by the image control CPU 71a and outputs the formed images to the main display 3 and the sub-display 4.

The sound control circuit 72 outputs voice signals, which are used for outputting voices from the speakers 12L and 12R. From the speakers 12L and 12R, for example, voices for encouraging a game are output at appropriate timings after start of the game.

In the above-described RAM 33 of the motherboard 40, a winning combination determining table 92 shown in Fig. 7 is stored.

The winning combination determining table 92 is looked up when the main CPU 32 performs a winning determination of a combination of symbols stopped to be displayed in three symbol display areas 3A, 3B, and 3C of the main display 3 and determination on the number of coins to be paid-out in a case where a game is won. The winning combination determining table 92 has a symbol data area 92a, a number of payout coins area 92b, and a winning combination area 92c. The areas 92a, 92b, and 92c are stored in association with one another. In the winning combination determining table 92, combinations of symbols to be winning combinations in the slot machine 1A are defined. When the combination of symbols corresponds to one of the winning combinations included in the winning combination determining table 92, coins corresponding to the number of payout coins which are stored in association with the combination are paid-out from the slot machine 1A. For example, when the combination of symbols is “7”, “7”, and “7”, a winning combination of “777” is won, and thereby 30 coins are paid out. In addition, when winning of the winning combination of “7” is determined by the main CPU 32, the simultaneous display process (see Fig. 18) to be described later is performed. Accordingly, the winning combination of “7” is a winning combination for starting the simultaneous display process and corresponds to a predetermined winning combination according to the present invention.

OPERATION OF GAMING SYSTEM ACCORDING TO FIRST EMBODIMENT

Subsequently, a control process of the above-described gaming system 100 will now be described with reference to Figs. 11 to 18. Fig. 11 shows an operation sequence of the gaming system 100 according to a first embodiment. Fig. 11 is a sequence diagram with primarily focused on data transmission between the slot machines 1A to 1E and the game server 200. In Figs. 11 to 18 and 22 to 23, Step is abbreviated as “S”.

As shown in Fig. 11, the first to fifth slot machines 1A to 1E perform a start checking process (see Step 4 in Fig. 12) to be described later when slot games are started. When receiving a bet operation from a player in the start checking process, each one of the slot machines 1A to 1E transmits bet data d1 representing the amount of bet to the game server 200. Whenever receiving the bet data d1, the game server 200 adds a predetermined amount to the jackpot counter.

For example, when receiving the bet data d1 from the slot machine 1A, the CPU 201 of the game server 200
calculates a value corresponding to a predetermined ratio of the bet amount (for example, 5% of the bet amount) included in the bet data d1 and adds the calculated value to the jackpot counter. When the value of the jackpot counter is updated by the CPU 201, values displayed in the jackpot display areas 31 of the slot machines 1A to 1E are accordingly updated.

In the slot machines 1A to 1E, independent slot games are performed. For example, when the first slot machine 1A wins the winning combination of “77”, the first slot machine 1A transmits jackpot request data d2 to the game server 200. Then, the game server 200 performs a first jackpot lottery process (see FIG. 17) to be described later, and thereby determining whether the jackpot has been won. In addition, the game server 200 transmits simultaneous display symbol data d3 to the first to fifth slot machines 1A to 1E and then, transmits jackpot distributed amount in a case where the jackpot has been won. Then, the first to fifth slot machines 1A to 1E performs the simultaneous display process (see FIG. 18) to be described later. When receiving the jackpot distributed amount, the first to fifth slot machines 1A to 1E pay out the jackpot distributed amount and add the jackpot distributed amount to the payout coin counter.

Next, an operation sequence of the first slot machine 1A performing a slot game will be described. Each operation sequence of the second to fifth slot machines 1B to 1E is the same as that of the first slot machine 1A, and thus a description thereof is omitted here. FIG. 12 is a flowchart showing an operation flow of a main control process that is repeatedly performed by the main CPU 32 after power is turned on. When starting the main control process in accordance with driving of the system, the main CPU 32 of the slot machine 1A proceeds to Step 3 after performing Steps 1 and 2, and a repetitive routine in which steps from Step 3 to Step 10 are sequentially processed repeatedly is performed.

When the process proceeds to Step 1, the main CPU 32 of the slot machine 1A executes the BIOS stored in the ROM 34, thereby reading out the authentication program from the boot ROM 21 and storing the authentication program in the RAM 33. In addition, the main CPU 32 performs an authentication process of the game program and the gaming system program which are stored in the memory card 27 on the basis of the authentication program, thereby reading out the game program and the gaming system program through the gaming board 20. Then, the main CPU 32 performs a storage process for storing the read-out game program and gaming system program into the RAM 33.

Subsequently, the process proceeds to Step 2, and the main CPU 32 performs a retrieval process in which the payout rate setting data stored in the GAL 28 is read out through the gaming board 20 and stores the read-out payout rate setting data into the RAM 33.

Subsequently, when the process proceeds to Step 3, the main CPU 32 performs an initialization process for starting the next game. The initialization process is a process in which data for items set in predetermined data areas is cleared and the like and is performed each time one slot game is completed. Next, the main CPU 32 sequentially performs a start checking process, an internal lottery process, a reel control process, and a payout coins determining process of Step 4 to Step 7. Here, a slot game in the base game mode is performed.

Next, the process proceeds to Step 8, and the main CPU 32 shifts it game mode from a base game mode to a bonus game mode in a case where a free game trigger is achieved in the base game mode. Then, the process proceeds to Step 9, and the main CPU 32 performs a free game process. The main CPU 32 performs a process in which one or several free games are processed in the base game process. After performing the free game process, the main CPU 32 proceeds to Step 10. However, when the free game trigger is not achieved during the base game mode, the process proceeds to Step 10 by skipping Step 9.

In Step 10, the main CPU 32 performs a coin payout process for directly or indirectly paying out coins. The main CPU 32 determines whether the CASH-OUT switch 11 is in an “ON” state. When it is determined that the CASH-OUT switch 11 is in the “ON” state, the main CPU 32 sums up the value of the payout coin counter and the value of the credit counter. In order to perform a direct payout operation, the main CPU 32 controls the hopper drive circuit 63 to drive the hopper 64, so that coins corresponding to the summed number are paid out into the coin receiving tray 14. On the other hand, when it is determined that the CASH-OUT switch 11 is not in the “ON” state, the main CPU 32 adds the value of the payout coin counter to the credit counter for performing an indirect payout operation.

When an “ON” signal is input from the CASH-OUT switch 11, the main CPU 32 sets “1” indicating direct payout to a CASH-OUT flag assigned in the RAM 33. On the other hand, when an “OFF” signal is input from the CASH-OUT switch 11, the main CPU 32 sets “0” indicating indirect payout to the CASH-OUT flag. The main CPU 32 determines whether the CASH-OUT switch 11 is in the “ON” state on the basis of the value set in the CASH-OUT flag.

Start Checking Process

The start checking process of Step 4 is performed in accordance with a flowchart shown in FIG. 13. When the start checking process is started, the process proceeds to Step 11, and the main CPU 32 of the slot machine 1A determines whether coin insertion is detected by determining whether a signal is input from the coin insertion sensor 6a. When the coin insertion is detected, the main CPU 32 proceeds to Step 12 and then proceeds to Step 13 after performing Step 12. On the other hand, when coin insertion is not detected, the process proceeds to Step 13 by skipping Step 12. In Step 12, the main CPU 32 updates (adds based on the number of inserted coins) the credit counter indicating remaining credits calculated by the number of inserted coins or the number of coins to be paid out. Subsequently, in Step 13, it is determined whether the credit counter is “0”. When the credit counter is “0”, the process proceeds to Step 20. When the credit counter is not “0”, the process proceeds to Step 14. In Step 14, reception of operations of the bet switches (1-BET switch 9 and the MAX-BET switch 10) is allowed.

Subsequently, in Step 15, the main CPU 32 determines whether any operation of the bet switches (bet operation) has been detected. When any operation of the bet switches has been detected, the process proceeds to Step 16. On the other hand, when any operation is not detected, the process proceeds to Step 21. In Step 16, the main CPU 32 updates the bet counter indicating the number of betted coins and the credit counter (increase the bet counter and decrease the credit counter) based on the basis of the bet switches which operations have been detected. Subsequently, in Step 17, the main CPU 32 determines whether the bet counter has reached the maximum value. When the bet counter has reached the maximum value, a process for prohibiting update of the bet
counter is performed, and the process proceeds to Step 18. On the other hand, when the bet counter has not reached the maximum value, the process proceeds to Step 19 by skipping Step 18. In Step 19, the main CPU 32 allows reception of the operation of the spin switch 8.

[0098] Subsequently, in Step 20, the main CPU 32 determines whether the operation of the spin switch 8 has been detected. When the operation of the spin switch 8 has not been detected, the process proceeds back to Step 11, and the above-mentioned process is repeated. On the other hand, when the main CPU 32 has detected the operation of the spin switch 8, the process proceeds to Step 21, and the value of the bet counter is acquired. In addition, the main CPU 32 controls the communication control unit 82 and the communication processing unit 81 to transmit the bet data d1 (see FIG. 11) indicating the acquired value to the game server 200 and then ends the start checking process.

Internal Lottery Process

[0099] When the start checking process ends, the process proceeds to Step 5 shown in FIG. 12, and the main CPU 32 of the slot machine 1A performs an internal lottery process. The main CPU 32 performs the internal lottery process in accordance with a flowchart shown in FIG. 14.

[0100] When the internal lottery process is started, the process proceeds to Step 41, and the main CPU 32 controls the sampling circuit 36 to extract arbitrary random numbers from among random numbers generated by the random number generator 35. Subsequently, in Step 42, the main CPU 32 determines symbols (symbols determined to be stopped) to be stopped to be displayed in the symbol display areas 3A to 3C by looking up an internal lottery table (not shown in the figure) on the basis of the random numbers extracted in Step 41. In this case, extraction of a random number is performed three times in correspondence with the symbol display areas 3A to 3C, and the determination of a symbol to be stopped is performed three times in correspondence with the symbol display areas 3A to 3C.

[0101] After determining the symbols to be stopped in the symbol display areas 3A to 3C, the main CPU 32 stores symbol data of the determined symbols to be stopped in a symbol storage area assigned in the RAM 33. In the symbol storage area, the symbol data of the symbols to be stopped is stored. The main CPU 32 performs display of stopped symbols in the symbol display areas 3A to 3C on the basis of the symbol data stored in the symbol storage area.

[0102] The symbol data, for example, is code number data (see FIG. 6) on the basis of symbol array in each reel.

[0103] Subsequently, in Step 43, the main CPU 32 determines whether the winning combination of “7” has been won by searching the winning combination determining table 92 (see FIG. 7) using the symbol data stored in the symbol storage area of the RAM 33.

[0104] In other words, the main CPU 32 determines whether the winning combination of “7” has been won on the basis of a combination of symbol data (code number data) of predetermined stop symbols to be stopped to be displayed in three symbol display areas 3A to 3C by looking up the winning combination determining table 92. When the combination of symbol data of predetermined stop symbols stopped to be displayed in three symbol display areas 3A to 3C is identical to the combination of the winning combination of “7” (combination of “7”, “7”, and “7”), the main CPU 32 determines that the winning combination of “7” has been won.

[0105] When it is determined that the winning combination of “7” has not been won in Step 43, the internal lottery process ends. On the other hand, when it is determined that the winning combination of “7” has been won, the process proceeds to Step 44. In Step 44, the main CPU 32 controls the communication processing unit 81 and the communication control unit 82 to transmit the jackpot request data d2 (see FIG. 11) to the game server 200 and then ends the internal lottery process.

Reel Control Process

[0106] When the internal lottery process is ended, the main CPU 32 proceeds to Step 6 shown in FIG. 12, and a reel control process is performed. The main CPU 32 performs the reel control process in accordance with a flowchart shown in FIG. 15.

[0107] When the reel control process is started, the process proceeds to Step 51, and the main CPU 32 performs a scroll control process. At this moment, the CPU 32 controls the image control circuit 71 to display scroll images g1 (see FIG. 19A) in the symbol display areas 3A to 3C.

[0108] Subsequently, in Step 52, the process standby until a reel rotation stopping timer that has been set to a predetermined time in advance becomes “0”. When the reel rotation stopping timer becomes “0”, the process proceeds to Step 53, and the main CPU 32 controls the image control circuit 71 to display images (stop symbol display images) in which the symbols g2 (see FIG. 19B) are stopped to be displayed in the symbol display areas 3A to 3C in Step 53. After Step 53 is performed, the main CPU 32 ends the reel control process.

Payout Coins Determining Process

[0109] After completing the reel control process, the process proceeds to Step 7 shown in FIG. 12, and the main CPU 32 performs a payout coins determining process. In particular, the main CPU 32 performs the payout coins determining process in accordance with a flowchart shown in FIG. 16.

[0110] As shown in FIG. 16, when the payout coins determining process is started, the process proceeds to Step 61, and the main CPU 32 determines the number of payout coins by looking up the winning combination determining table 92 (see FIG. 7).

[0111] In other words, the main CPU 32 determines the number of payout coins and the winning combination on the basis of symbol data (code number data) of the predetermined stop symbols to be displayed in three symbol display areas 3A to 3C by looking up the winning combination determining table 92. When a combination of the symbol data of the predetermined stop symbols to be displayed in three symbol display areas 3A to 3C is identical to one (for example, a combination of “Bell”; “Bell”; and “Bell”) of the winning combinations stored in the symbol data area 92a, the number of payout coins and the winning combination which are in association with the combination are extracted from the payout coin area 92b and the winning combination area 92c. The main CPU 32 determines the won number of payout coins and winning combination on the basis of the extracted data. On the other hand, when the combination of symbol data of the predetermined stop symbols is not identical to any one of the winning combinations, the main CPU 32 determines the number of payout coins to be “0”.

[0112] Subsequently, the process proceeds to Step 62, the number of payout coins determined in Step 61 is added to the
payout coin counter, and the main CPU 32 ends the payout coins number determining process.

[0113] When the payout coins determining process is completed, the process proceeds to Step 8 shown in FIG. 12, and the main CPU 32 determines whether free game trigger has been achieved. When the free game trigger has been achieved, the process proceeds to Step 9, and the main CPU 32 performs a free game process, and then the process proceeds to Step 10. On the other hand, when the free game trigger has not been achieved, the process proceeds to Step 10 without performing the free game process.

[0114] In Step 10, the main CPU 32 controls the hopper drive circuit 63 to payout coins corresponding to the value of the payout coin counter from the hopper 64. For example, when the winning combination of “Bell” has been won in the slot machine 1A, ten coins are paid out. On the other hand, when any one of the winning combinations has not been won in the slot machine 1A, no coin is paid out. When the winning combination of “7” has been won in the slot machine 1A and the jackpot lottery in the game server 200 has been won, coins corresponding to the distributed amounts of the jackpot amount received from the game server 200 are paid out from the slot machines 1A to 1E.

[0115] Next, the first jackpot lottery process performed by the game server 200 will be described. FIG. 17 is a flowchart showing an operation sequence of the first jackpot lottery process. When the first jackpot lottery process is started, the process proceeds to Step 101. Then, when the CPU 201 of the game server 200 receives the jackpot request data d2 from the first slot machine 1A, the process proceeds to Step 102.

[0116] In Step 102, the CPU 201 controls the sampling circuit 210 to extract arbitrary random numbers from among random numbers generated by the random number generator 211. Thereafter, in Step 103, the CPU 201 determines symbols (simultaneous display symbols) simultaneously stopped to be displayed in the first to fifth slot machines 1A to 1E on the basis of the extracted random numbers by looking up the internal lottery table (not shown in the figure). In this case, extraction of a random number is performed five times in correspondence with the slot machines 1A to 1E; and determination of a simultaneous display symbol is performed five times in correspondence with the slot machines 1A to 1E. In addition, the CPU 201 stores symbol data of the determined simultaneous display symbols in a simultaneous display symbol storage area 96 (see FIG. 9) assigned in the RAM 203. Alternatively, the extraction of a random number may be performed once by the CPU 201, and the simultaneous display symbols of the whole first to fifth slot machines 1A to 1E may be determined on the basis of the extracted random number.

[0117] The symbol data stored in the simultaneous display symbol storage area 96, for example, is the code number data (see FIG. 8) on the basis of the symbol array in the simultaneous display symbol array table 95. FIG. 9A shows a storage example in a case where the jackpot has been won. In FIG. 9A, the entire symbol data stored in correspondence with the slot machines 1A to 1E is “8”. The symbol data “8” corresponds to the “7” symbol G6 (see FIG. 8). FIG. 9B shows a storage example in a case where the jackpot has not been won. In FIG. 9B, symbol data of “Plum” (symbol G3), symbol data of “7” (symbol G6), symbol data of “16” (symbol G7), and symbol data of “Bell” (symbol G3) are stored in correspondence with the first, second, third, fourth, and fifth slot machines 1A, 1B, 1C, 1D, and 1E.

[0118] Subsequently, in Step 104, the CPU 201 determines whether the jackpot has been won by searching the jackpot winning determining table 93 (see FIG. 10) using the symbol data stored in the simultaneous display symbol storage area 96 of the RAM 203.

[0119] In other words, the CPU 201 determines whether the jackpot has been won on the basis of a combination of the symbol data (code number data) of the simultaneous display symbols stored in correspondence with the slot machines 1A to 1E by looking up the table 93. The main CPU 32 determines that the jackpot has been won when the combination of the symbol data of the simultaneous display symbols stopped to be displayed in the slot machines 1A to 1E is identical to any one of the winning combinations of “7” (a combination of “7”, “7”, “7”, “7”, “7”, and “7”), a winning combination of “Bar” (a combination of “Bar”, “Bar”, “Bar”, “Bar”, and “Bar”), a winning combination of “Bell” (a combination of “Bell”, “Bell”, “Bell”, and “Bell”), a winning combination of “Plum” (a combination of “Plum”, “Plum”, “Plum”, and “Plum”), a winning combination of “Melo” (a combination of “Melo”, “Melo”, “Melo”, and “Melo”), and a winning combination of “Cherry” (a combination of “Cherry”, “Cherry”, “Cherry”, and “Cherry”).

[0120] When the CPU 201 determines that the jackpot has been won in Step 104, the process proceeds to Step 105. In Step 105, the CPU 201 calculates the distributed amounts of the jackpot. In other words, the CPU 201 extracts the value of the jackpot counter and calculates the distributed amounts by dividing the extracted value by the number of the grouped slot machines 1A to 1E. The method of calculating the distributed amounts of the jackpot is not limited to a method in which the distributed amounts are equally distributed, and the number of payout coins in the slot machine 1A that is a source of the jackpot request data d2 may be configured to be larger than those of the other slot machines 1B to 1E. Furthermore, the distributed amounts may be calculated by using a method in which the slot machines 1A to 1E are classified to be ranked on the basis of the payout rates thereof and the distributed amounts vary depending on the ranks.

[0121] When the CPU 201 calculates the distributed amounts of the jackpot, the process proceeds to Step 106. Then, the CPU 201 controls the communication control unit 205 and the communication processing unit 204 to transmit the simultaneous display symbol data d3. In other words, the CPU 201 generates the simultaneous display symbol data d3 in which symbol data stored in the simultaneous display symbol storage area 96 and machine IDs of the slot machines 1A to 1E are in correspondence with each other, transmits the simultaneous display symbol data d3 and the distributed amounts of the jackpot to the slot machines 1A to 1E, and completes the jackpot lottery process.

[0122] On the other hand, when the CPU 201 determines that the jackpot has not been won in Step 104, the process proceeds to Step 107, and the CPU 201 controls the communication control unit 205 and the communication processing unit 204 to transmit only the simultaneous display symbol data d3 to the slot machines 1A to 1E and completes the jackpot lottery process.

[0123] Next, a simultaneous display process performed by the slot machine 1A that has received the simultaneous dis-
play symbol data $d_3$ will be described. The simultaneous display process is performed in accordance with a flowchart shown in FIG. 18.

[0124] The process proceeds to Step 81 for the main CPU 32 of the slot machine 1A to start an interrupt process in accordance with reception of the symbol data $d_2$. In Step 81, the main CPU 32 temporarily saves a program, which is stored in a storage area (register) inside the memory, currently executed in the main control process, and the process proceeds to Step 82.

[0125] In Step 82, the main CPU 32 stores the received simultaneous display symbol data in a symbol data storage area that is used for simultaneous display. Subsequently, in Step 83, the main CPU 32 controls the image control circuit 71 to display simultaneous scroll images $G_1$ (see FIGS. 1A, 20A, and 21A) in the simultaneous display areas 3E.

[0126] Subsequently, in Step 84, the process stands until the simultaneous scroll stopping timer set to a predetermined time in advance becomes “0”. When the simultaneous scroll stopping timer becomes “0”, the process proceeds to Step 85, and the main CPU 32 controls the image control circuit 71 to display simultaneous display symbols, for example, of the “7” symbol $G_6$, a “Plum” symbol $G_5$, a “Bar” symbol $G_8$, and a “Bell” symbol $G_3$ in the simultaneous display areas 3E. Subsequently, in Step 86, the CPU 201 restores the register of the program of the main control process that has been saved and resumes the restored program from a time point when the main control process was stopped (saved). When the register is restored, the CPU 201 completes the simultaneous display process. When receiving the distributed amounts of the jackpot together with the simultaneous display symbol data, the CPU 201 acquires a value on the basis of distributed amount data of the jackpot and adds the value to the payout coin counter.

[0127] As described above in detail, according to the gaming system 100, when the slot machines 1A to 1E are in a predetermined state, players playing slot games using the slot machines pay attention to symbols displayed in the slot machines 1A to 1E, and thereby the players can enjoy the games while having the feeling of solidarity. In addition, the players can acquire coins paid out on the basis of a combination of the symbols, and accordingly, the degree of satisfaction of the players for the result of the games increases. Accordingly, the players can enjoy a new entertaining feature in addition to existing entertaining features.

[0128] In particular, in the above-described gaming system 100, when the gaming system is in a specific gaming state in which a predetermined winning combination of “7” is won in any one of the slot machines 1A to 1E, the gaming server 200 abruptly stops slot games performed using the slot machines 1A to 1E in a simultaneous manner. Then, the gaming server 200 displays the simultaneous scroll images $G_1$ and then displays the simultaneous display symbols by performing control operations, which are related with one another, for the slot machines 1A to 1E. As a result, even a player playing slot games repeatedly can feel freshness by abruptly stopping the slot game and displaying the simultaneous display symbols, and whereby the player is not easily tired of the slot games owing to the fresh surprise.

[0129] The gaming server 200 pays out the distributed amounts of the jackpot to the slot machines 1A to 1E on the basis of the result of a combination of the simultaneous display symbols. The amount of the jackpot is not fixed and is accumulated in accordance with amounts betted in slot games of the slot machines 1A to 1E. As a result, the players have an increased expectation in accordance with an increase in the amount of the jackpot, and accordingly, the players can enjoy a new entertaining feature in addition to existing entertaining features. The game server 200 calculates distributed amounts of the jackpot by dividing the amount of the jackpot by five and pays out the distributed amounts of the jackpot to all the five slot machines 1A to 1E in which the simultaneous display symbols are displayed. As a result, the players using the slot machines 1A to 1E can be pleased together by receiving the coins together, and accordingly, the mood of the players using the slot machines 1A to 1E is encouraged.

[0130] Since the player who has won the winning combination of “7” and received payout of coins can receive additional payout of coins on the basis of the result of the combination of the simultaneous display symbols, the degree of satisfaction of the player for the result of the game increases.

**OPERATION OF GAMING SYSTEM ACCORDING TO SECOND EMBODIMENT**

[0131] Subsequently, a control process of a gaming system according to a second embodiment of the present invention will be described with reference to FIGS. 22 and 23. FIG. 22 shows an operation sequence of a gaming system according to the second embodiment. FIG. 22 is a sequence diagram with a primary focus on data transmission between the slot machines and the game server. Since elements constituting the gaming system according to the second embodiment are the same as those constituting the gaming system 100 according to the first embodiment, to the gaming system according to the second embodiment or each element thereof, a same reference numeral as that of the gaming system 100 according to the first embodiment or the corresponding element thereof is attached, and detailed descriptions thereof are omitted here.

[0132] As shown in FIG. 22, when slot games are started, the first to fifth slot machines 1A to 1E perform a start checking process (see Step 4 shown in FIG. 12). When receiving a bet operation from a player in the start checking process, each one of the slot machines 1A to 1E transmits bet data $d_1$ indicating the betted amount to the game server 200. When receiving the bet data $d_1$, the game server 200 adds a predetermined amount to the jackpot counter.

[0133] In the gaming system 200, the above-described process is repeated until a predetermined time condition is satisfied (see Step 110 shown in FIG. 22). When the predetermined time condition is satisfied, a second jackpot lottery process (see Step 111 shown in FIG. 22) is performed. A case where the predetermined condition is satisfied, for example, is a case where preset time has been reached, a case where a predetermined time elapses after the previous jackpot lottery process is performed, a case where a predetermined time has elapsed after power of each one of the slot machines 1A to 1E is turned on, or the like.

[0134] The succeeding second jackpot lottery process is performed in accordance with a flowchart shown in FIG. 23. When the second jackpot lottery process is started, random numbers are extracted by performing the same process as the first jackpot lottery process (Step 121). Thereafter, succeeding processes (Step 122 to Step 126) are performed in accordance with a same operation sequence as the first jackpot lottery process. When the jackpot has been won, the CPU 201 transmits the simultaneous display symbol data $d_3$ and the jackpot distributed amount data to the slot machines 1A to 1E.
On the other hand, when the jackpot has not been won, the CPU 201 transmits the simultaneous display symbol data d3 to the slot machines 1A to 1E.

[0135] As shown in FIG. 22, the slot machines 1A to 1E that have received the simultaneous display symbol data d3 stop the slot games and perform the same simultaneous display process as that of the gaming system according to the first embodiment. In addition, when the jackpot distributed amount data is received, the slot machines 1A to 1E payout the jackpot distributed amounts and add the jackpot distributed amounts to the payout coin counter.

[0136] According to the game server 200 and the gaming system 100 which perform the second jackpot lottery process, when a predetermined time condition is satisfied, players playing slot games using the slot machines 1A to 1E pay attention to symbols displayed in the slot machines 1A to 1E together. In addition, the players can acquire coins paid out on the basis of a combination of the symbols. Therefore, the players can enjoy a new entertaining feature in addition to existing entertaining features.

[0137] In addition, since the game server 200 manages the predetermined time condition, the simultaneous display process can be performed for the slot machines 1A to 1E at appropriate timings, and accordingly, it becomes easy to manage timings of the slot machines 1A to 1E for encouraging the mood of the players.

[0138] The present invention is not limited to the above-described embodiments, and various changes or modifications can be made therein. For example, the gaming machine is not limited to a slot machine and may be any one of various gaming machines that provide games other than a slot game, such as a card gaming machine or the like.

[0139] The specific gaming state is not limited to a state in which a predetermined winning combination of “7” has been won in the slot machine, and a different winning combination may be used. Furthermore, the specific gaming state may be a state in which winning combinations have been consecutively won in a plurality of slot machines within a short time (for example, ten seconds).

[0140] The game media is not limited to coins and may be bills or electronic money which is used for performing the game.

[0141] Although three symbol display areas are provided in the above-described slot machines, the number of the symbol display areas is not limited to three and may be five or seven. Furthermore, for example, a plurality of symbol display areas that are disposed in a plurality of rows and a plurality of columns (for example, 3x3) may be provided. The gaming system may be configured that an activated pay line is set by the plurality of symbol display areas and a winning combination is won in a case where symbols to be stopped are displayed in the plurality of symbol display areas placed on the activated pay line become a predetermined combination.

[0142] What is paid out in a case where the combination of symbols displayed in the plurality of gaming machines is a predetermined combination is not limited to the amount of the jackpot or the distributed amount of the jackpot, and a fixed amount may be paid all the time or the paid-out amount may be configured to change on the basis of a combined shape of symbols.

[0143] The number of the gaming machines that are communicably connected to the game server is not limited to five and may be two or more, for example, three or seven. Furthermore, all the gaming machines connected to the game server may be divided into groups each having a plurality of gaming machines, and the simultaneous display process may be performed with the gaming machines within each group associated with one another. For example, 100 gaming machines may be connected to the game server, while the gaming machines are divided into groups each having 20 gaming machines, and the simultaneous display process may be performed for each group having a specific gaming state.

[0144] Furthermore, the specific gaming state is not limited to the case where the winning combination of “7” has been won, and any other winning combination such as a winning combination of “Bar” or a winning combination of “Bell” for which coins are paid out may be used as a condition for achieving the specific gaming state.

[0145] In the above-described embodiments, although a slot machine that performs a slot game by displaying a scroll image on a main display constituted by an LCD has been described as an example, a slot machine that has mechanical reels and performs a slot game by controlling rotation and stop of the reels may be used. In such a case, when the gaming system is in a specific gaming state, the controller of the game server may associate a plurality of slot machines, and, for example, may display symbols by starting synchronized rotation of center reels of the slot machines and then simultaneously stopping the rotation of the center reels, and the controller may be configured to perform payout of coins when a combination of the symbols is a predetermined combination. Furthermore, for example, the simultaneous display process may be performed by providing a simultaneous symbol display area in a display device (sub-display) other than the main display.

[0146] The above-described embodiments are described as an example where the game server 200 is provided separately from each of the slot machines 1A-1E. However, the gaming system 100 may be configured that the game server 200 is provided in one of the slot machines 1A-1E.

What is claimed is:

1. A gaming system comprising:
   a plurality of gaming machines that provide games to respective players; and
   a game server that includes:
   a communication unit that is communicably connected to the gaming machines; and
   a main controller that operates to:
   determine symbols to be respectively displayed on each of the gaming machines from among a plurality of symbols when determined that at least one of the gaming machines is in a predetermined gaming state; and
   control at least one of the gaming machines through the communication unit to provide a first prescribed amount of a game medium when a combination of the determined symbols satisfies a predetermined combination.

2. The gaming system according to claim 1, wherein the game server is provided separately from the gaming machines.

3. The gaming system according to claim 1, wherein each of the gaming machines includes:
   a display device that displays symbols selected from among a plurality of symbols; and
a game controller that provides a second prescribed amount of the game medium when a combination of the symbols displayed on the display device satisfies one of predetermined winning combinations.

5. The gaming system according to claim 4, wherein the main controller operates to determine the symbols to be respectively displayed on each of the gaming machines when determined that the combination of the symbols displayed on the display device in at least one of the gaming machines satisfies a predetermined one of the winning combinations.

6. The gaming system according to claim 1, wherein the main controller further operates to accumulate a part of total game medium that are used to play the games in each of the gaming machines, and

wherein the main controller controls at least one of the gaming machines through the communication unit to provide the accumulated amount of the game medium as the first prescribed amount.

7. A gaming system comprising:

a plurality of gaming machines that provide games to respective players; and

game server that includes:

a communication unit that is communicably connected to the gaming machines; and

a main controller that operates to:

- determine symbols to be respectively displayed on each of the gaming machines from among a plurality of symbols when determined that a predetermined time condition is satisfied; and

- control at least one of the gaming machines through the communication unit to provide a first prescribed amount of game medium when a combination of the determined symbols satisfies a predetermined combination.

8. The gaming system according to claim 7, wherein the game server is provided separately from the gaming machines.

9. The gaming system according to claim 7, wherein the game server is provided in one of the gaming machines.

10. The gaming system according to claim 7, wherein each of the gaming machines includes:

- a display device that displays symbols selected from among a plurality of symbols; and

- a game controller that provides a second prescribed amount of the game medium when a combination of the symbols displayed on the display device satisfies one of predetermined winning combinations.

11. The gaming system according to claim 7, wherein the main controller further operates to accumulate a part of total game medium that are used to play the games in each of the gaming machines, and

wherein the main controller controls at least one of the gaming machines through the communication unit to provide the accumulated amount of the game medium as the first prescribed amount.

12. A game server comprising:

- a communication unit that is communicably connected to a plurality of gaming machines that provide games to respective players; and

- a main controller that operates to:

- determine symbols to be respectively displayed on each of the gaming machines from among a plurality of symbols when determined that at least one of the gaming machines is in a predetermined gaming state; and

- control at least one of the gaming machines through the communication unit to provide a first prescribed amount of game medium when a combination of the determined symbols satisfies a predetermined combination.

13. The game server according to claim 12, wherein the main controller operates to determine the symbols to be respectively displayed on each of the gaming machines when determined that a combination of symbols displayed on at least one of the gaming machines satisfies a predetermined one of winning combinations.

14. The game server according to claim 12, wherein the main controller further operates to accumulate a part of total game medium that are used to play the games in each of the gaming machines, and

wherein the main controller controls at least one of the gaming machines through the communication unit to provide the accumulated amount of the game medium as the first prescribed amount.

15. A game server comprising:

- a communication unit that is communicably connected to a plurality of gaming machines that provide games to respective players; and

- a main controller that operates to:

- determine symbols to be respectively displayed on each of the gaming machines from among a plurality of symbols when determined that a predetermined time condition is satisfied; and

- control at least one of the gaming machines through the communication unit to provide a first prescribed amount of game medium when a combination of the determined symbols satisfies a predetermined combination.

16. The game server according to claim 15, wherein the main controller further operates to accumulate a part of total game medium that are used to play the games in each of the gaming machines, and

wherein the main controller controls at least one of the gaming machines through the communication unit to provide the accumulated amount of the game medium as the first prescribed amount.