

[0085] Connected to the CPU 103 are a clock pulse generation circuit 106 for generating reference clock pulses, a frequency divider 107, a random number generator 108 for generating a random number to be sampled, and a sampling circuit 109 for sampling the random number on the basis of a signal from the start lever 13 which will be described later. The microcomputer 102 may also be utilized as random number sampling means to perform sampling of a random number with software process. In this case, both the random number generator 108 and the sampling circuit 109 may be omitted.

[0086] The ROM 104 of the microcomputer 102 stores not only control programs for controlling various operations of the slot machine 1, but also various data such as a winning probability table used for determining in probability lottery process (which will be described later) whether a random number acquired on the basis of the operation of the start lever 13 is a winning value or a losing value, a stop table used for determining the stop positions of reels 24L, 24C, and 24R according to the operations of the respective stop buttons 15L, 15C, and 15R, and various game information commands to be supplied to the sub-control circuit 201.

[0087] The various peripheral devices (actuators) are also connected to the CPU 103 via an I/O port 110.

[0088] A motor driving circuit 111 performs driving control of stepping motors 112L, 112C, and 112R for rotationally driving the respective reels 24L, 24C, and 24R, in response to driving signals from the CPU 103. In addition, the motor driving circuit 111 performs stop-control of the stepping motors 112L, 112C, and 112R in response to stop control signals from the CPU 103.

[0089] A hopper driving circuit 113 performs driving control of a hopper 114 which is a coin payout device, on the basis of a payout command sent by the CPU 103.

[0090] A seven-segment driving circuit 122 performs driving control of various displays formed by seven segment LEDs (a during-bonus information display 33, a credit display 34, and a payout display 35).

[0091] A lamp driving circuit 116 performs lighting control of various displays formed by lamps (a REPLAY lamp 30, a WAIT lamp 31, a WIN lamp 32, and a START lamp 36).

[0092] Other effect display means comprises the reel liquid crystal display device 21, the electronic shutter 22, and the reel backlight. The effect display means is under driving control by the sub-control circuit 201.

[0093] Main input signal generation means for generating input signals necessary for the microcomputer 102 to generate control signals for the respective driving circuits are the start lever 13, the 1-BET switch 8, the 2-BET switch 9, the MAX-BET switch 10, the C/P switch 12, an inserted-coin sensor 117, a reel stop signal circuit 118, a reel index detection circuit 115, and a payout detection circuit 119. These circuits are also connected to the CPU 103 via the I/O port 110.

[0094] The start lever 13 detects a start operation by the player. The inserted-coin sensor 117 detects a coin which has passed through a selector for excluding deformed coins from among coins inserted from the coin insertion slot 11. The reel stop signal circuit 118 detects whether each of the stop

buttons 15L, 15C, and 15R has been operated, and generates a stop signal. The reel index detection circuit 115 receives a signal from any of rotational reference position detection switches incorporated in the respective stepping motors 112L, 112C, and 112R, and supplies a symbol position reset signal to the CPU 103. The payout detection circuit 119 receives a signal from a coin detector 120 incorporated in the hopper 114, and supplies a number-of-payout-coins signal to the CPU 103.

[0095] The following description refers to how each of these driving circuits is controlled in the flow of a series of game processes. First of all, after the power source switch of the slot machine 1 has been turned on, the random number generator 108 continues to generate random numbers which belong to a predetermined numerical range. If the insertion of coins by the player is detected by the inserted-coin sensor 117 or the coins or equivalents are credited, the reel liquid crystal display device 21 displays an activated line corresponding to the number of betted coins in response to a bet operation of the 1-BET switch 8, the 2-BET switch 9, or the MAX-BET switch 10. The bet operation is as shown in the magnified view in FIGS. 7A, 7B, and 7C. A one-bet operation makes a center line L1 an activated pay line (hereinafter abbreviated as an "activated line"), a two-bet operation makes, in addition to the center line L1, a top line L2A and a bottom line L2B activated lines, and a three-bet operation makes a cross or diagonal lines L3A and L3B activated lines in addition to the center line L1, the top line L2A, and the bottom line L2B.

[0096] Then, the sampling circuit 109 samples the random numbers at the timing when the start lever 13 detects the operation of the player to start a game. Then, the CPU 103 collates the sampled random number with the winning probability table stored in the ROM 104, and if the player hits a winning combination, the CPU 103 sets a winning flag corresponding to the winning combination. This software lottery process is hereinafter referred to as "probability lottery process", and the details thereof will be described later.

[0097] Then, the CPU 103 supplies driving pulses to each of the stepping motors 112L, 112C, and 112R through the motor driving circuit 111, whereby each of the reels 24L, 24C, and 24R starts rotating. The CPU 103 monitors the driving pulses that are being supplied, and updates a pulse counter reserved in the RAM 105. Then, the CPU 103 monitors the value of this pulse counter, and when the pulse counter reaches a predetermined value, the CPU 103 determines that each of the reels 24L, 24C, and 24R has moved by one symbol (also called one frame), and adds one to a symbol counter reserved in the RAM 105.

[0098] For example, if a reel using a stepping motor which makes one rotation with four hundred pulses has twenty-one symbols arranged on its circumferential surface, the reel moves by one symbol (or one frame) for a period of about nineteen pulses. When the value of the pulse counter reaches nineteen pulses, the CPU 103 determines that the reel has moved by one symbol, and adds one to the symbol counter.

[0099] In the meantime, when the reference point of each of the symbols of any of the reels 24L, 24C, and 24R passes through the center line L1 shown in FIGS. 7A-C, the corresponding one of the reels 24L, 24C, and 24R generates an index detection signal, and a reset pulse is input to the