devices are installed to the system, channels of the different sound source devices may be allocated to synthesize a single timbre.

[0045]   By the way, if the sound source device select mode or preceding mode is not detected in step Se2, there may be the CPU select preceding mode or the manual mode in which the CPU synthesizing mode is set together with the sound source synthesizing mode. Thus, the procedure branches to step Se11 in Figure 16. In this step Se11, it is tested whether the current state of the CPU synthesizing mode and the performance information relevant to the issued event comply with the "condition" for synthesizing by the devices including the CPU. Various factors may be conceived as the "condition" for synthesis by CPU as in the case of the "condition" for synthesis by the sound source device (step Se3). In this embodiment, the condition is whether a number of voices (timbres) to be synthesized currently is within a maximum number of voices which can be synthesized simultaneously with the CPU synthesizing mode. More particularly, in step Se11, it is tested whether the number of channels (CH) currently being held in note-on status and being allocated for the computation devices including the CPU is less than or equal to the maximum number of the channels which can be used for simultaneous synthesizing of the waveforms by the CPU synthesizing mode. If the "condition" is satisfied, it is tested whether the flag ENBLFLG is "1" or not in step Se12. As described above, the value "1" of the flag ENBLFLG here indicates that the synthesis of the waveform by the CPU synthesizing mode is ready to be started. Therefore, the allocation procedure is executed for the waveform synthesis by the devices including the CPU 10 in step Se13, and the procedure further goes forward to step Se9. The detail of the allocation procedure in step Se13 is not explained here again, since the procedure is eventually the same as in step Se7. On the other hand, if the "condition" for synthesis of the waveform by CPU is not complied in step Se11, or the devices including the CPU 10 are not ready in step Se12, the allocation procedure is executed in step Se14 as in step Se4, so that the processing relevant to the event is done by the external sound source device. The synthesizing using the specified hardware is done in step Se15 as in step Se5. After step Se13, steps Se9 and step Se10 are executed. In step Se9, it is detected whether the allocation command exists to generate wave data by the CPU. If the command is not detected, the procedure returns immediately. Otherwise, the waveform is calculated according to the allocation command to generate sound by the CPU in step Se10.

[0046]   Thus, in the external sound source select preceding mode, the synthesizing process complying with the "condition" for synthesis by the hardware device is executed by the sound source in step Se5, while the synthesizing process which does not comply with the "condition" is executed by the CPU 10 in step Se10. On the other hand, if the designated mode is not the sound

source preceding select mode, the process complying with the "condition" for synthesis by the CPU 10 is executed by the software module in step Se10, while the synthesizing process which does not comply with the "condition" for synthesis by the CPU is executed by the hardware sound source device in step Se15. Thus, in the synthesis using the selected hardware, if the synthesizing process exceeds the processing power of the hardware specified in the sound source synthesizing mode, the exceeding part of the process is executed by the CPU synthesizing mode, so that it is possible to synthesize a plurality of voices more than the full number of voices which can be simultaneously reproduced in the hardware without enhancing hardware setup. In general, when the input device such as the I/O 14 provides performance information effective to command concurrent generation of a plurality of musical sounds, the inventive apparatus designates one of the first waveform generator and the second waveform generator according to a number of concurrent musical sounds specified by the performance information such that the designated one has a capacity sufficient to create a number of waveforms corresponding to the number of the musical sounds. When the number of the concurrent musical sounds exceeds a capacity of either of the first waveform generator and the second waveform generator, both of the first waveform generator and the second waveform generator are designated to ensure complete generation of the concurrent musical sounds.

[0047]   The timer process will be described hereunder. The timer process is an interrupt process executed at a predetermined interval Tt during the trial waveform synthesis program described before. Figure 17 is a flowchart illustrating the timer process in detail. In step Sf1, it is tested if the flag BUSY is "1", which means that the counting up of the timer is enabled. If this detection results in negative, the procedure skips to Sf3. Otherwise, the routine goes forward to step Sf2, where the register TCOUNT is incremented by "1" if the detection result is positive. In step Sf3, other miscellaneous timer processes are executed to finish the timer routine. Thus, the timer process increments the register TCOUNT by "1" if the flag BUSY is "1". The flag BUSY switches to "1" only in the loop of steps Sa9 to Sa11 so that the content of the register TCOUNT indicates the invocation cycles of the timer process within the time required for the computation or reading of one waveform. The lapse time can be derived by multiplying TCOUNT by Tt.

[0048]   In the arrangement shown in Figure 1, all the optional devices such as the co-processor 17, DSP 21 and external sound source 22 are fully installed. Thus, in this arrangement, all the operating modes can be designated with respect to the synthesizing mode and the allocation mode. If the operating mode is set to the sound source select mode at first priority, a part of the process exceeding the processing power of the external sound source is allocated to the CPU, and the CPU handles the process so that the musical sound can be