

the CD-ROM 51 or a floppy disk. The machine-readable media contains instructions for causing the personal computer to perform the inventive musical sound generating method as described in conjunction with the previous embodiments. Otherwise, the personal computer may receive the data and programs through the communication network 55.

[0066] In the embodiments described above, the optional devices including the co-processor 17, DSP 21, sound source 22 are referred to as examples, but the optional device is not limited to these devices. The present invention can be utilized in the application systems such as personal computer, electronic musical instrument, game machine and so on in which the musical sound is generated.

[0067] As shown in the foregoing, according to the present invention, various effects can be derived. It is possible to generate various musical sounds and to reduce a processing load required for musical sound generation. The musical sound can be generated at the optimum sample frequency for the configuration of the apparatus. The structure for generating the wave data of the musical sound can be significantly simplified. The quality of the generated musical sound can be retained even in low performance hardware. The musical sound can be generated according to the performance information even if the volume of the performance information becomes large.

Claims

1. A sound generating apparatus for creating a digital waveform to generate a musical sound according to performance information, comprising:

input means (14) for providing performance information (MIDI, KBD);

computerized waveform generator means operable based on a given algorithm at a variable operation speed to create a digital waveform by successively computing sample values of the digital waveform;

trial means for provisionally operating the computerized waveform generator to carry out trial creation of a model digital waveform while measuring the operation speed at which the trial creation is carried out;

determining means for optimally determining a sampling frequency comparable to the measured operation speed;

controller means for actually operating the computerized waveform generator to enable the same to successively compute sample values of an actual digital waveform at the determined sampling frequency; and

output means for generating the musical sound based on the actual digital waveform according to the provided performance information.

2. A sound generating method of creating a digital waveform to generate a musical sound according to performance information, the method comprising the steps of:

providing performance information (MIDI, KBD);

preparing a computerized waveform generator operable based on a given algorithm at a variable operation speed to create a digital waveform by successively computing sample values of the digital waveform (Sa 1);

provisionally operating the computerized waveform generator to carry out trial creation of a model digital waveform while measuring the operation speed at which the trial creation is carried out (Sa 15);

optimally determining a sampling frequency comparable to the measured operation speed (Sa 19, Sa 20, Sa 21);

actually operating the computerized waveform generator to enable the same to successively compute sample values of an actual digital waveform at the determined sampling frequency (Sa 6, Sa 7, Sa 8, Sa 9); and

generating the musical sound based on the actual digital waveform according to the provided performance information.

3. A machine readable media containing instructions for causing said machine to perform a method of creating a digital waveform to generate a musical sound according to performance information, the method comprising the steps of:

providing performance information (MIDI, KBD);

preparing a computerized waveform generator operable based on a given algorithm at a variable operation speed to create a digital waveform by successively computing sample values of the digital waveform (Sa 1);

provisionally operating the computerized waveform generator to carry out trial creation of a model digital waveform while measuring the operation speed at which the trial creation is carried out (Sa 15);

optimally determining a sampling frequency comparable to the measured operation speed (Sa 19, Sa 20, Sa 21);

actually operating the computerized waveform generator to enable the same to successively compute sample values of an actual digital waveform at the determined sampling frequency (Sa 6, Sa 7, Sa 8, Sa 9); and

generating the musical sound based on the actual digital waveform according to the provided performance information.