OKI Semiconductor

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AR203

Voice Analysis and Editing Tool

GENERAL DESCRIPTION

This voice analysis and editing tool is used to translate voice into PCM or ADPCM code to create a ROM for Oki's voice IC.

FEATURES

The voice analysis and editing tool is composed of a voice analysis and editing board, "AR203", with a dedicated ROM writer, and editing software, "VOICEPRO". When the board is used, it is to be inserted into a drive slot of IBM/AT.
The editing software enables analysis and editing by mouse operation as you watch displayed voice waveforms. Thus, even the beginner can readily use highly advanced technique to analyze and edit voice.

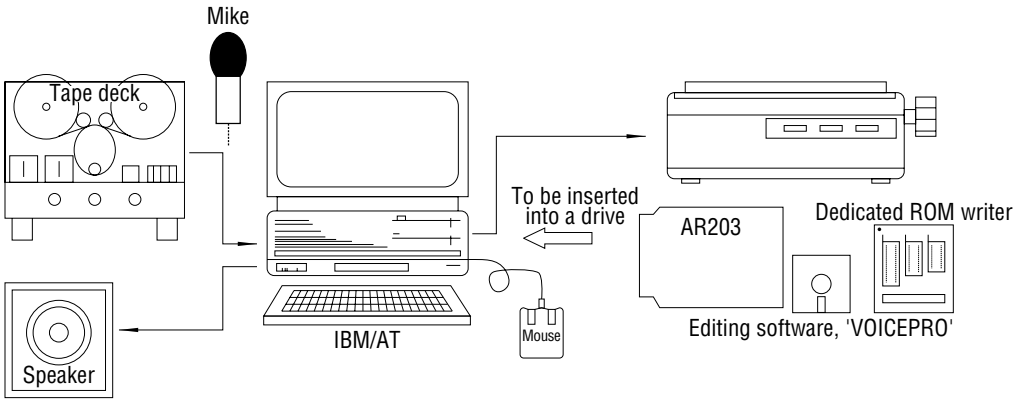
VOICE SYNTHESIS ICs

MSM6375 family (MSM6372, MSM6373, MSM6374, MSM6375, MSM6376, MSM63P74)
MSM6295
MSM6258
MSM5205
MSM6585
MSM6378A, MSM6379
MSM6388, MSM6588, MSM6688 (MSM6595A, MSM6596A, MSM6597A)
MSM6650 family (MSM6650, MSM6652A, MSM6653A, MSM6654A, MSM6655A, MSM6656A, MSM6658A, MSM66P54, MSM66P56)
MSM9802, MSM9803, MSM9805, MSM98P05*
MSM9810*
MSM9836
MSM9888*
MSM9831*

Note: The * mark indicates a device ready for supporting.

COMPONENTS OF VOICE ANALYSIS SYSTEM

Host computer	:	IBM/AT, or DOS/V
Color display	:	640 × 400 dots
Printer	:	Printer for IBM/AT
Mouse	:	Mouse for IBM/AT
Tape deck	:	To attain high-quality sound, it is recommended that an open reel tape deck or DAT be used.
Speaker	:	8 Ω and input of 2 or more watts
Voice analysis and editing tool	:	Voice analysis and editing board, AR203 (including a ROM writer), and editing software, VOICEPRO
* Option	:	P54/P56 SOP adapter (for SOP). Required when writing to the MSM66P54/MSM66P56 with the attached ROM writer. P05 adapter (for SOP*). *: under development Required when writing to the MSM98P05 with the attached ROM writer. The other devices incorporating OTP (MSM6378A, MSM6379, and MSM63P74) can be loaded without the adapter.



DISPLAY SCREEN

"VOICEPRO" displays waveforms of voice to be played back and edited. The waveform display screens are composed roughly of an editing screen and a monitor screen. Each screen is provided with an overall screen for displaying a whole recorded waveform, and with a time scale for displaying the time since the start of recording a waveform. The amplitude and temporal axis can be changed at your disposal.

COMMANDS

Record

Converts original sound into PCM and stores the resulting sound into the memory. The sampling frequency can be selected in the range of 4 kHz to 48 kHz in the 0.1 kHz step. The maximum recording time depends on the main memory or EMS allocation, being expressed coarsely by:

Maximum recording time (seconds) = size of allocation (bytes) /9/4 x fs (Hz)

Play

Tests and evaluates PCM or ADPCM sound.

Processing

Amplitude control	:	Expands or reduces a voice level.
Silent	:	Makes unnecessary part of voice and noise silent.
Insert silence	:	Inserts silence between units of voice.
Store a part of data	:	Specifies the range of voice data for paste onto another location, and stores it into the buffer memory.
Cut	:	Cuts unnecessary part of voice or the interval between units of voice. The cut contents are stored into the buffer memory. Using this function along with the "Paste" function enables waveforms to be moved.
Paste	:	Copies the contents of the buffer memory stored by "Store a part of data" and "Cut" to the specified position.
Fade	:	Smoothes abrupt changes in voice data.
Mixing	:	Adds contents of the buffer memory to voice data at the specified position.

Pitch change	:	Changes a voice pitch to implement effects similar to rapid and slow tape feeds.
Insert sine wave	:	Inserts a sine wave of an arbitrary frequency, size and length into any position of voice data.

Save
Writes edited voice data to a disk.

Load
Reads voice data to be edited from a disk.

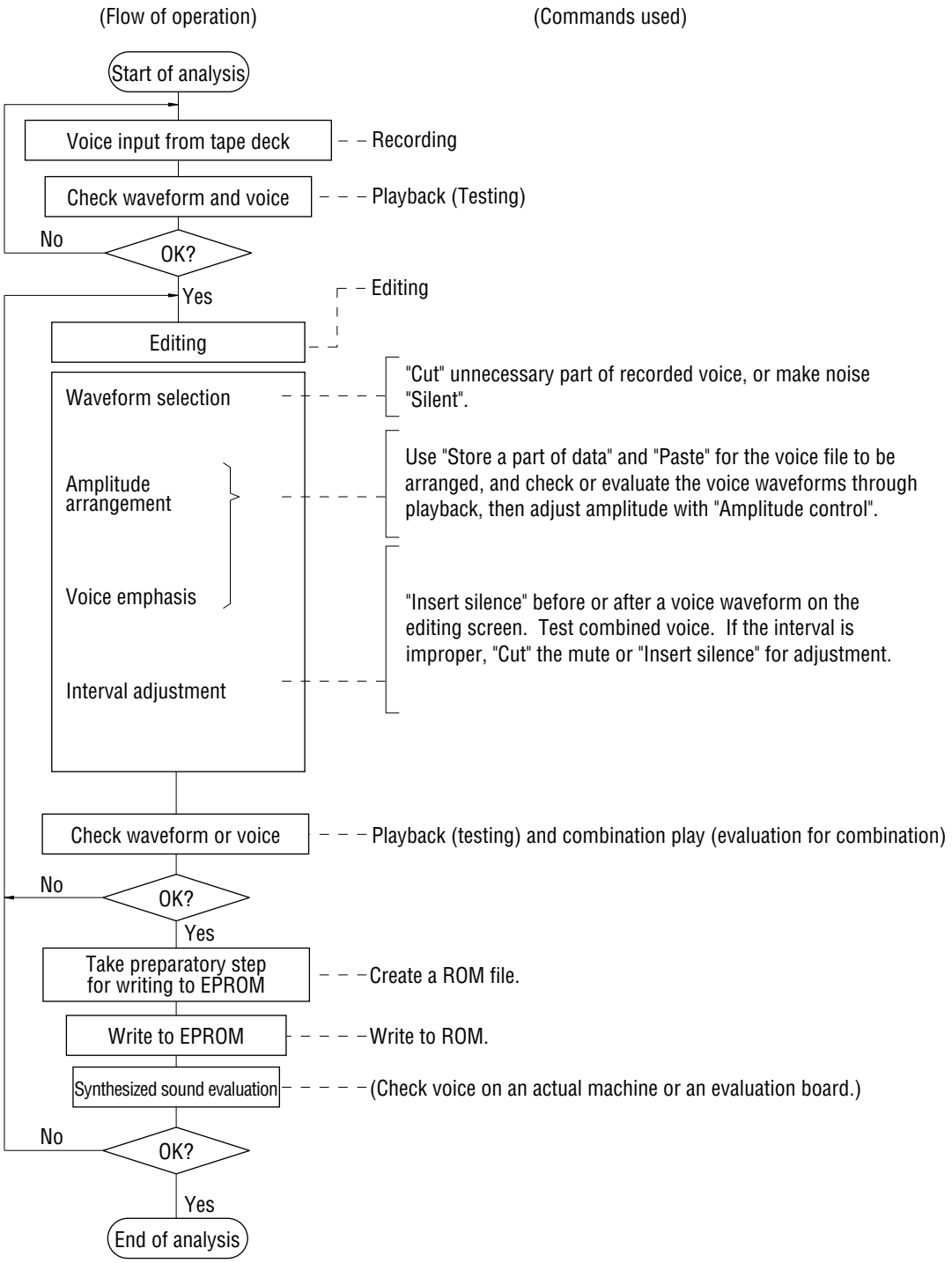
Combination Play
Combines two or more pieces of voice data to compare and evaluate voice continuation.

Melody Creation
Creates melody data based on input through staff notation. This function corresponds to the melody function supported by the MSM6650 family.
Up to triple chords can be created.

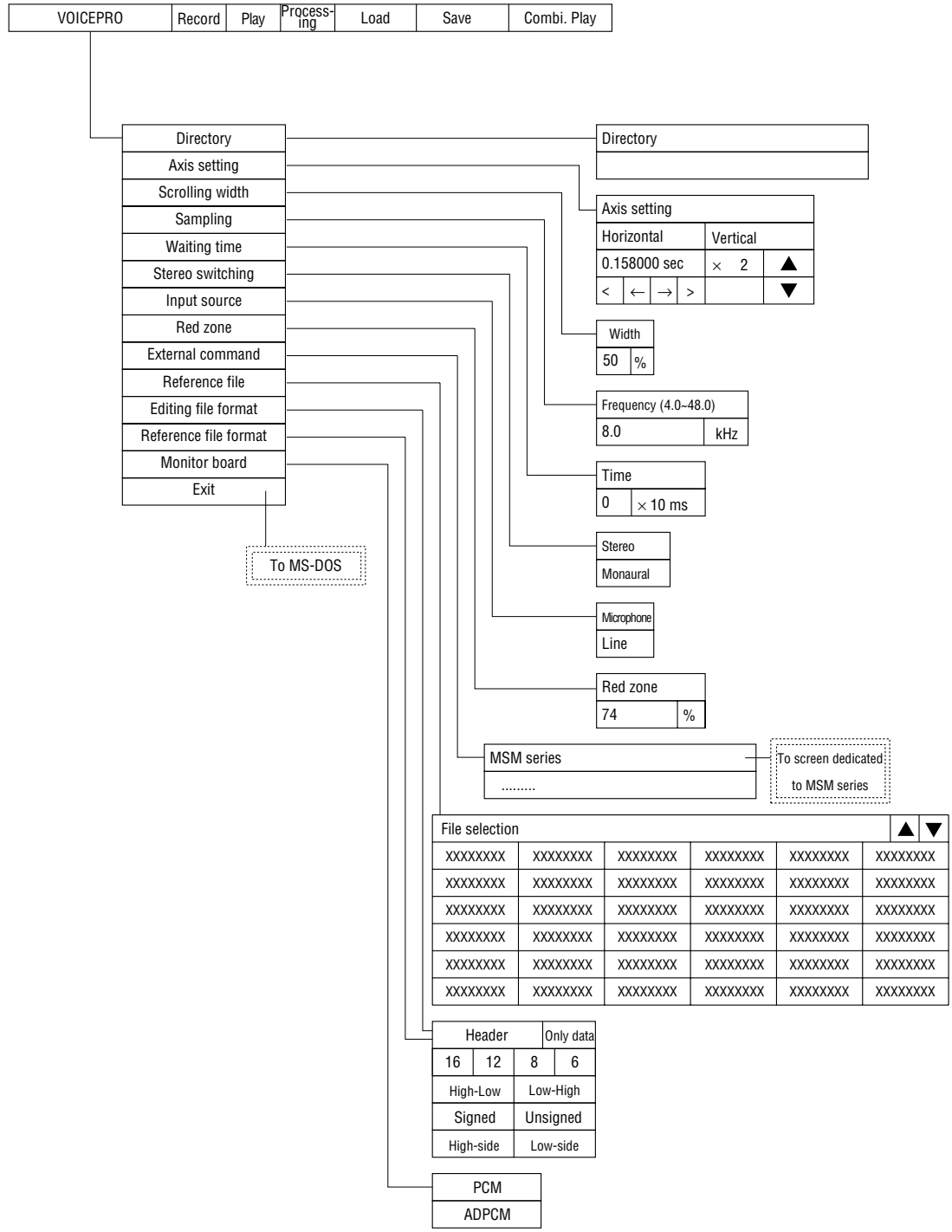
ROM File Creation
Converts an edited voice data file into the Intel HEX format and write the data to a disk.

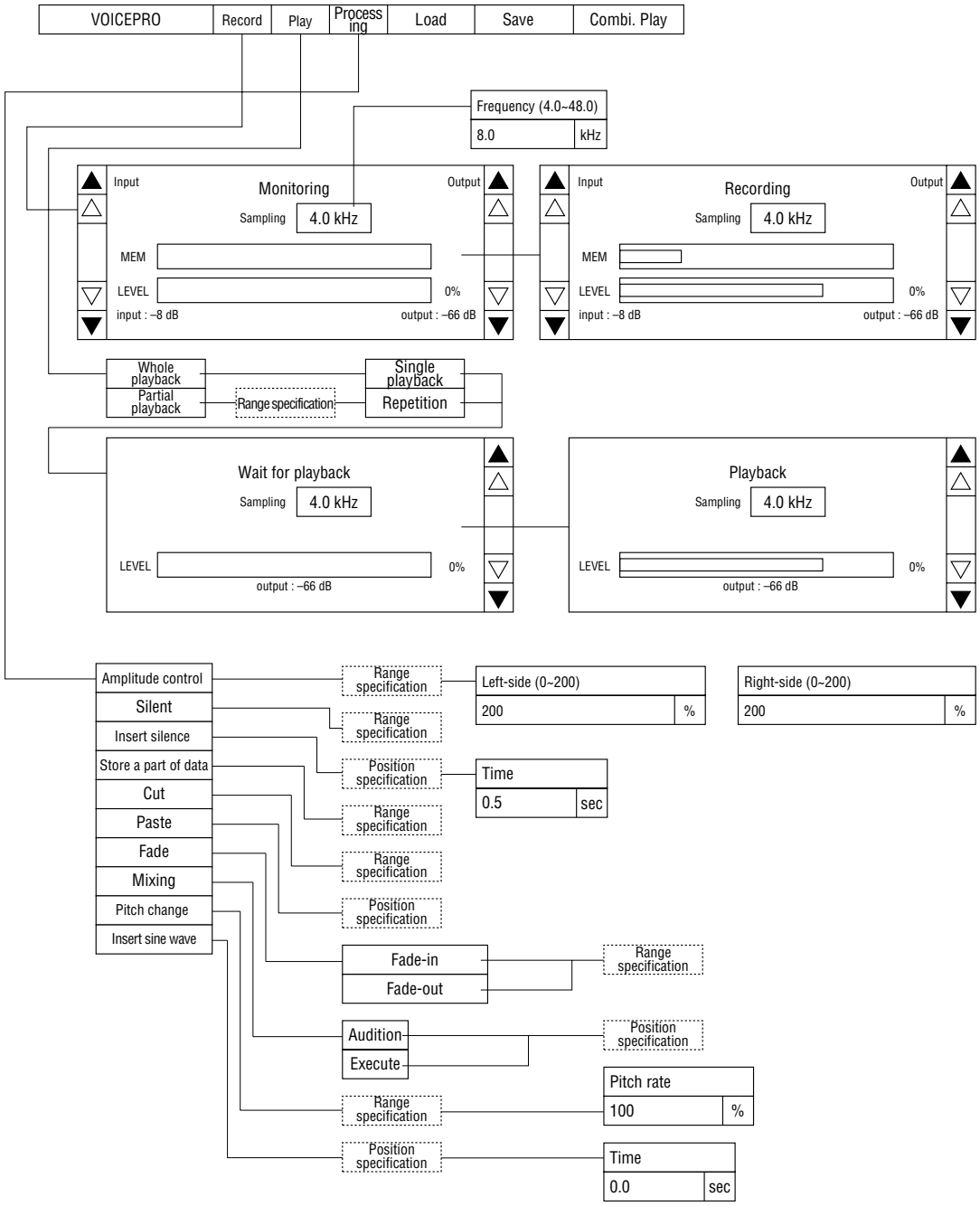
ROM Loading
Writes the voice data that has been converted into the Intel HEX format to PROM, MSM6378A, MSM6379, MSM63P74, MSM66P54, MSM66P56, or MSM98P05 with the attached ROM writer. The programmable PROM range from 64kbits to 4Mbits.

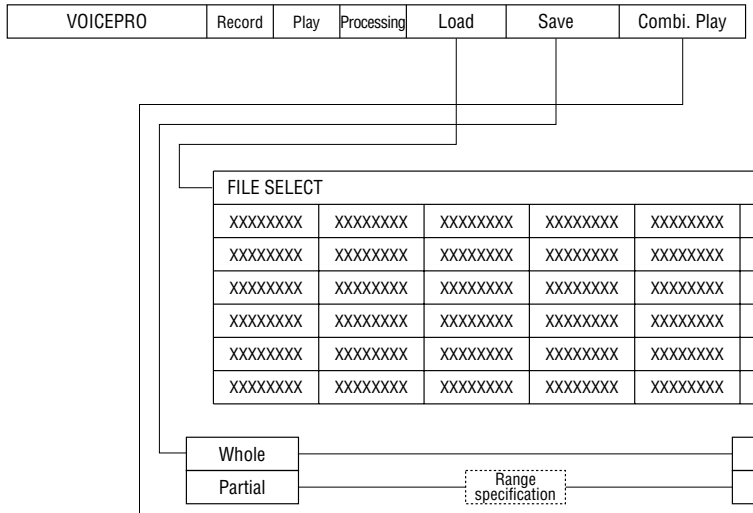
Typical flow of operation by VOICEPRO



VOICEPRO menu configuration

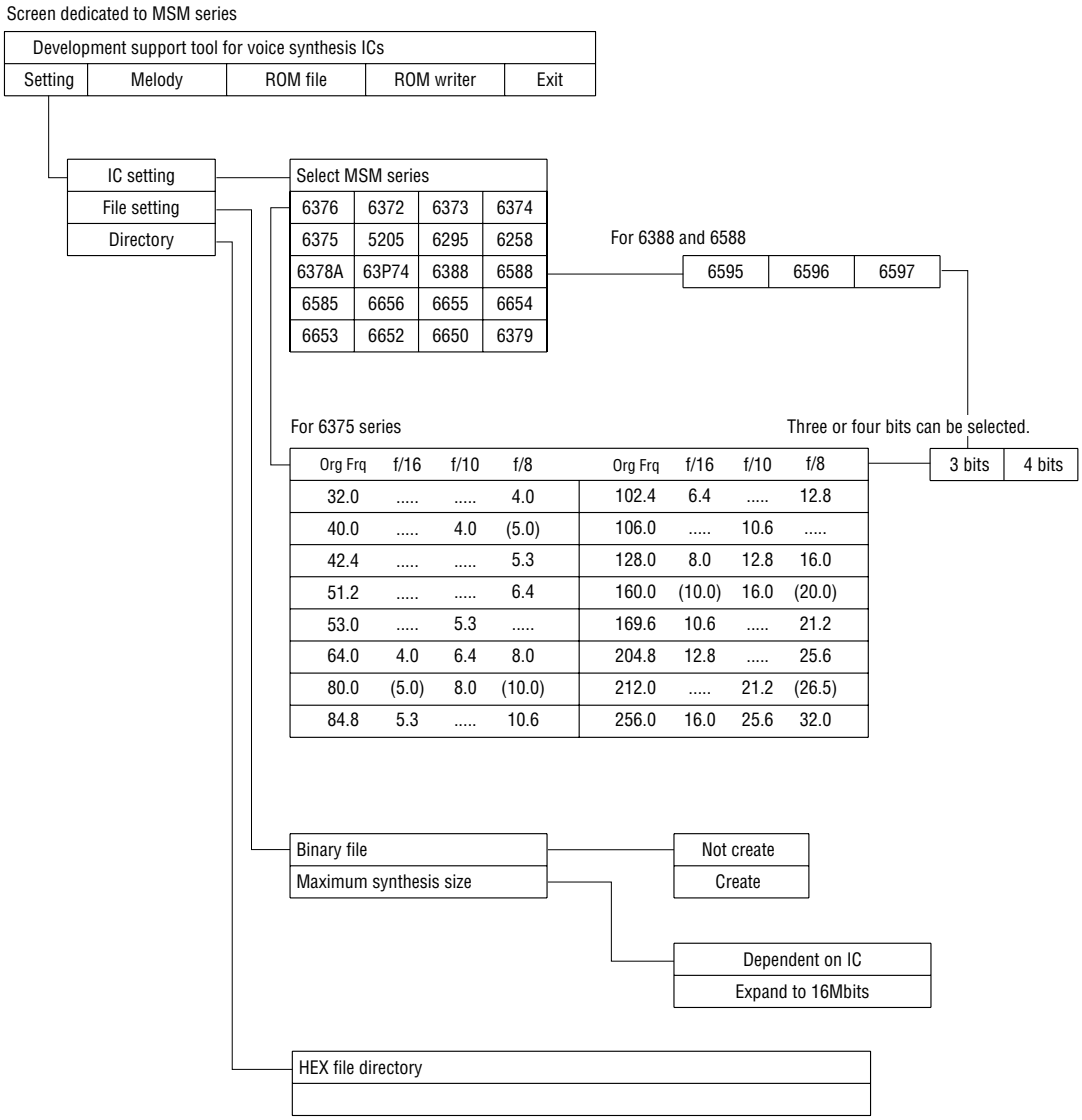


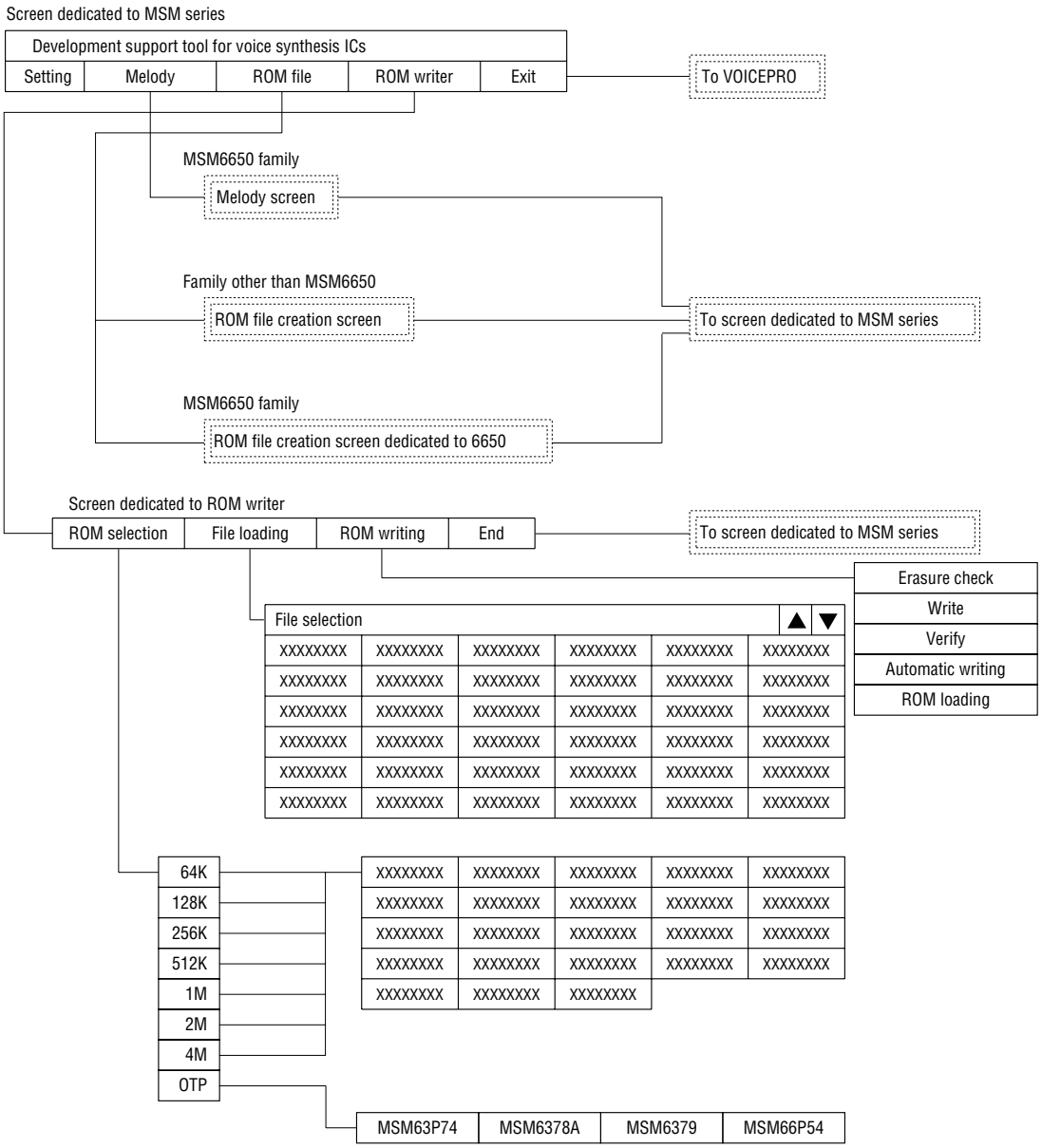

VOICEPRO
Record
Play
Processing
Load
Save
Combi. Play
Frequency (4.0~48.0)
8.0
kHz
Input
Monitoring
Output
Sampling
4.0 kHz
MEM
LEVEL
0%
input : –8 dB
output : –66 dB
Input
Recording
Output
Sampling
4.0 kHz
MEM
LEVEL
0%
input : –8 dB
output : –66 dB
Whole playback
Partial playback
Range specification
Single playback
Repetition
Wait for playback
Sampling
4.0 kHz
LEVEL
0%
output : –66 dB
Playback
Sampling
4.0 kHz
LEVEL
0%
output : –66 dB
Amplitude control
Silent
Insert silence
Store a part of data
Cut
Paste
Fade
Mixing
Pitch change
Insert sine wave
Range specification
Left-side (0~200)
200
%
Right-side (0~200)
200
%
Position specification
Time
0.5
sec
Fade-in
Fade-out
Audition
Execute
Pitch rate
100
%
Time
0.0
sec



Register	Play	Copy	Exchange	Erase	Move	Map	Reset	Temp Process	Quit	↑	↓	←	→

y/x	1	2	3	4	5	6	7	8
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								


Screen dedicated to MSM series
Development support tool for voice synthesis ICs
Setting
Melody
ROM file
ROM writer
Exit
IC setting
File setting
Directory
Select MSM series
6376 6372 6373 6374
6375 5205 6295 6258
6378A 63P74 6388 6588
6585 6656 6655 6654
6653 6652 6650 6379
For 6388 and 6588
6595 6596 6597
Three or four bits can be selected.
3 bits
4 bits
For 6375 series
Org Frq f/16 f/10 f/8
32.0 .... 4.0
40.0 ..... 4.0 (5.0)
42.4 .... 5.3
51.2 .... 6.4
53.0 ..... 5.3 .....
64.0 4.0 6.4 8.0
80.0 (5.0) 8.0 (10.0)
84.8 5.3 ..... 10.6
Org Frq f/16 f/10 f/8
102.4 6.4 ..... 12.8
106.0 ..... 10.6 .....
128.0 8.0 12.8 16.0
160.0 (10.0) 16.0 (20.0)
169.6 10.6 ..... 21.2
204.8 12.8 ..... 25.6
212.0 ..... 21.2 (26.5)
256.0 16.0 25.6 32.0
Binary file
Maximum synthesis size
Not create
Create
Dependent on IC
Expand to 16Mbits
HEX file directory


Screen dedicated to MSM series
Development support tool for voice synthesis ICs
Setting
Melody
ROM file
ROM writer
Exit
To VOICEPRO
MSM6650 family
Melody screen
Family other than MSM6650
ROM file creation screen
To screen dedicated to MSM series
MSM6650 family
ROM file creation screen dedicated to 6650
Screen dedicated to ROM writer
ROM selection
File loading
ROM writing
End
To screen dedicated to MSM series
Erasure check
Write
Verify
Automatic writing
ROM loading
File selection
XXXXXXXX
64K
128K
256K
512K
1M
2M
4M
OTP
MSM63P74
MSM6378A
MSM6379
MSM66P54

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