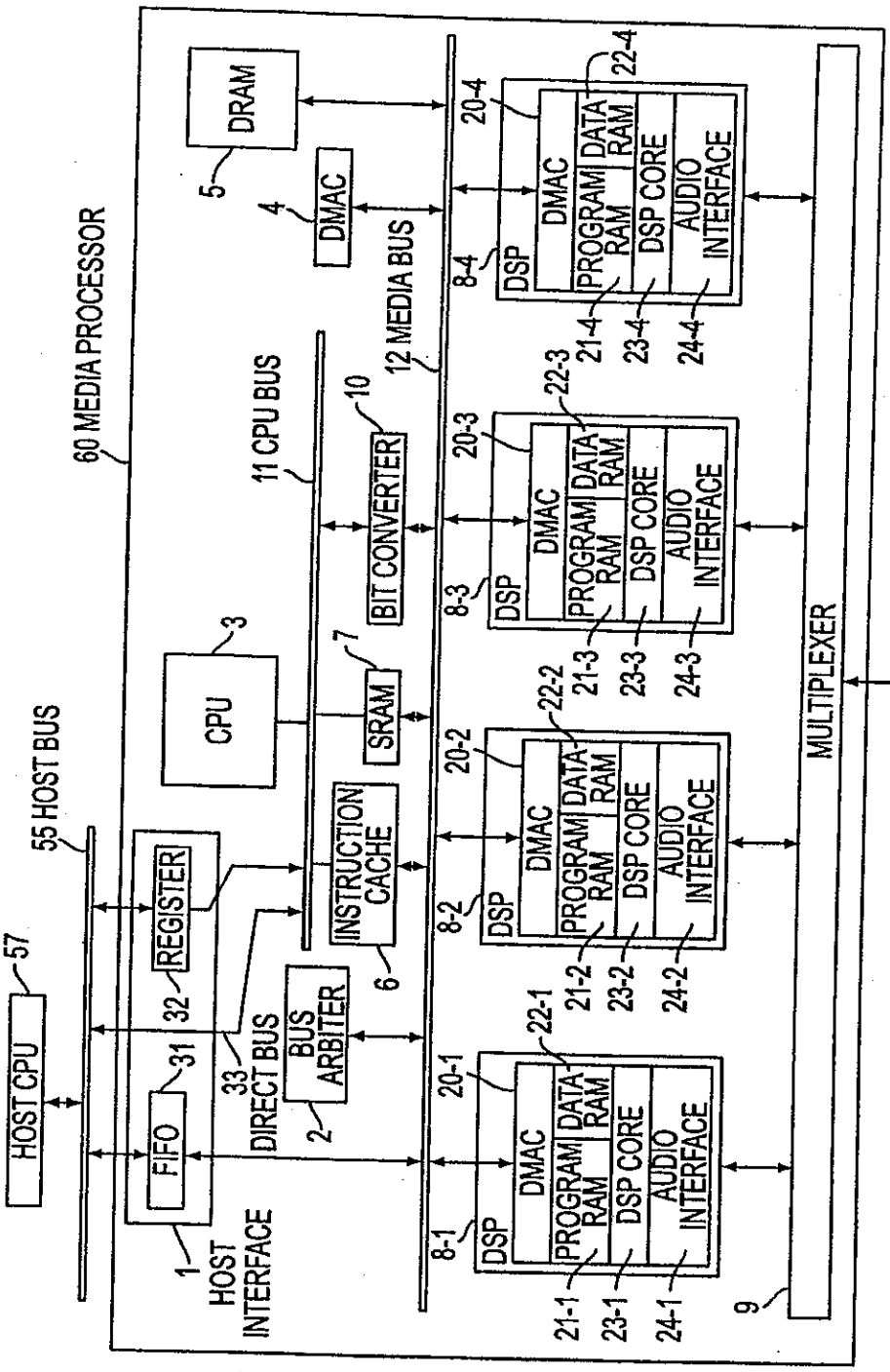

60 MEDIA PROCESSOR
55 HOST BUS
HOST CPU
57
HOST INTERFACE
1
REGISTER
32
FIFO
31
33
DIRECT BUS
BUS ARBITER
2
INSTRUCTION CACHE
6
CPU
3
SRAM
7
11 CPU BUS
BIT CONVERTER
10
DRAM
5
DMAC
4
12 MEDIA BUS
DSP
8-1
DMAC
PROGRAM RAM
DATA RAM
DSP CORE
AUDIO INTERFACE
20-1
22-1
21-1
23-1
24-1
8-2
20-2
22-2
21-2
23-2
24-2
8-3
20-3
22-3
21-3
23-3
24-3
8-4
20-4
22-4
21-4
23-4
24-4
9
MULTIPLEXER
50 SPEAKER
COMPUTER ENTERTAINMENT DEVICE

FIG. 1

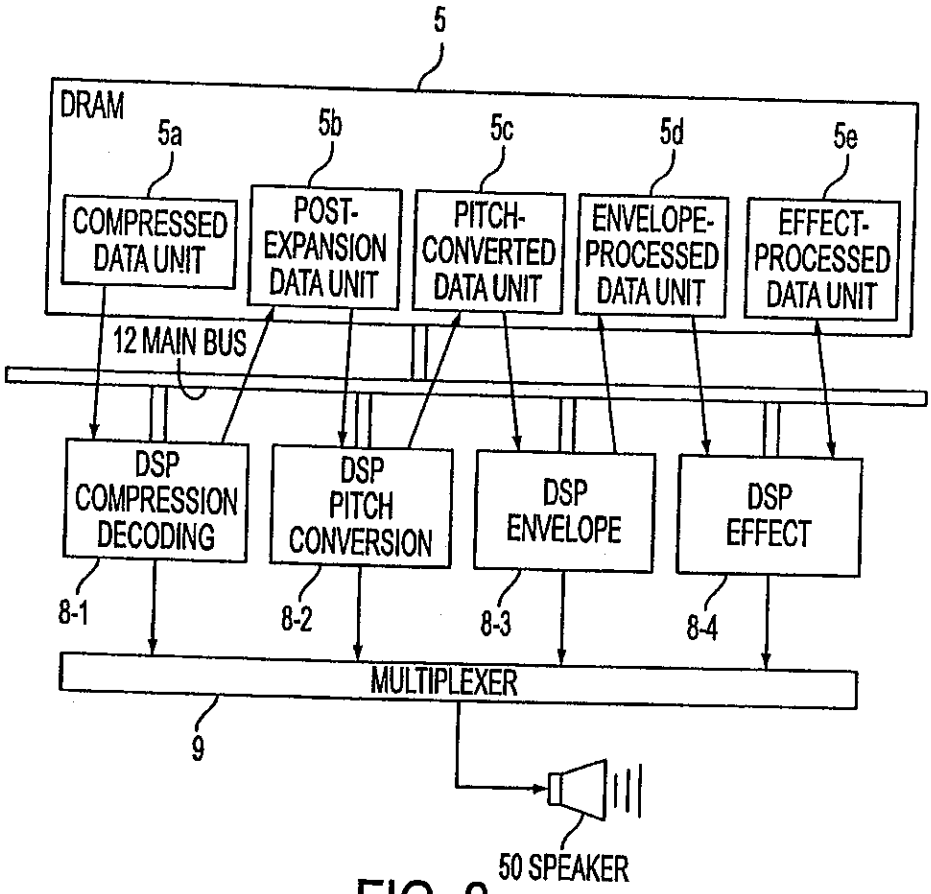


FIG. 2

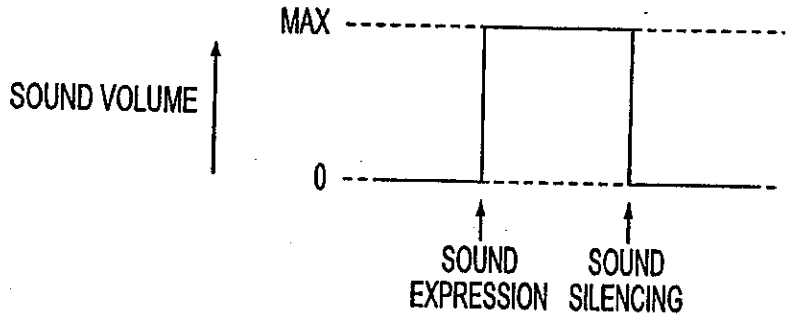


FIG. 3A

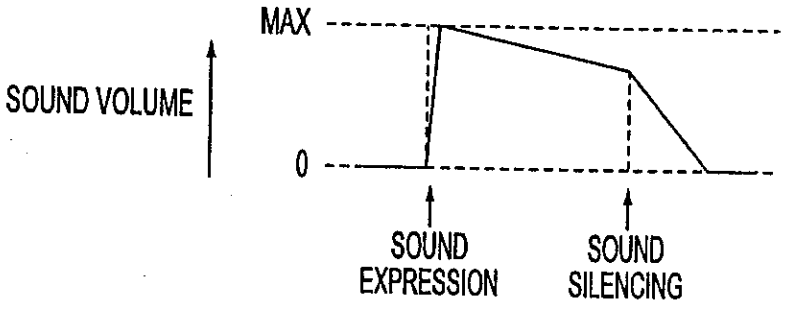


FIG. 3B

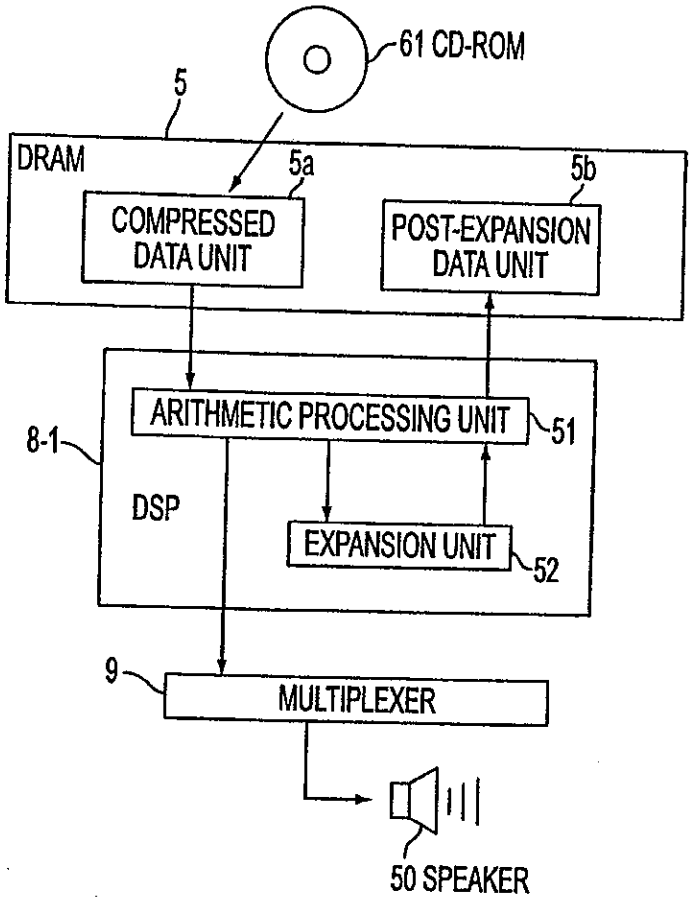

61 CD-ROM
5
DRAM
5a
5b
COMPRESSED DATA UNIT
POST-EXPANSION DATA UNIT
8-1
ARITHMETIC PROCESSING UNIT
51
DSP
EXPANSION UNIT
52
9
MULTIPLEXER
50 SPEAKER

FIG. 4

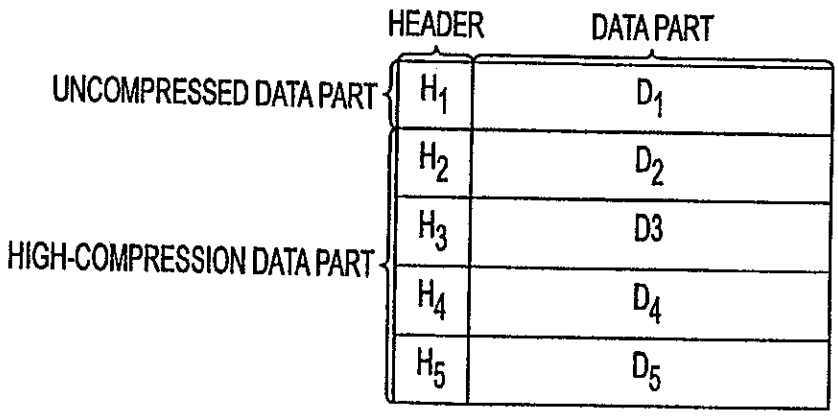

HEADER
DATA PART
UNCOMPRESSED DATA PART
HIGH-COMPRESSION DATA PART
H1
D1
H2
D2
H3
D3
H4
D4
H5
D5

FIG. 5

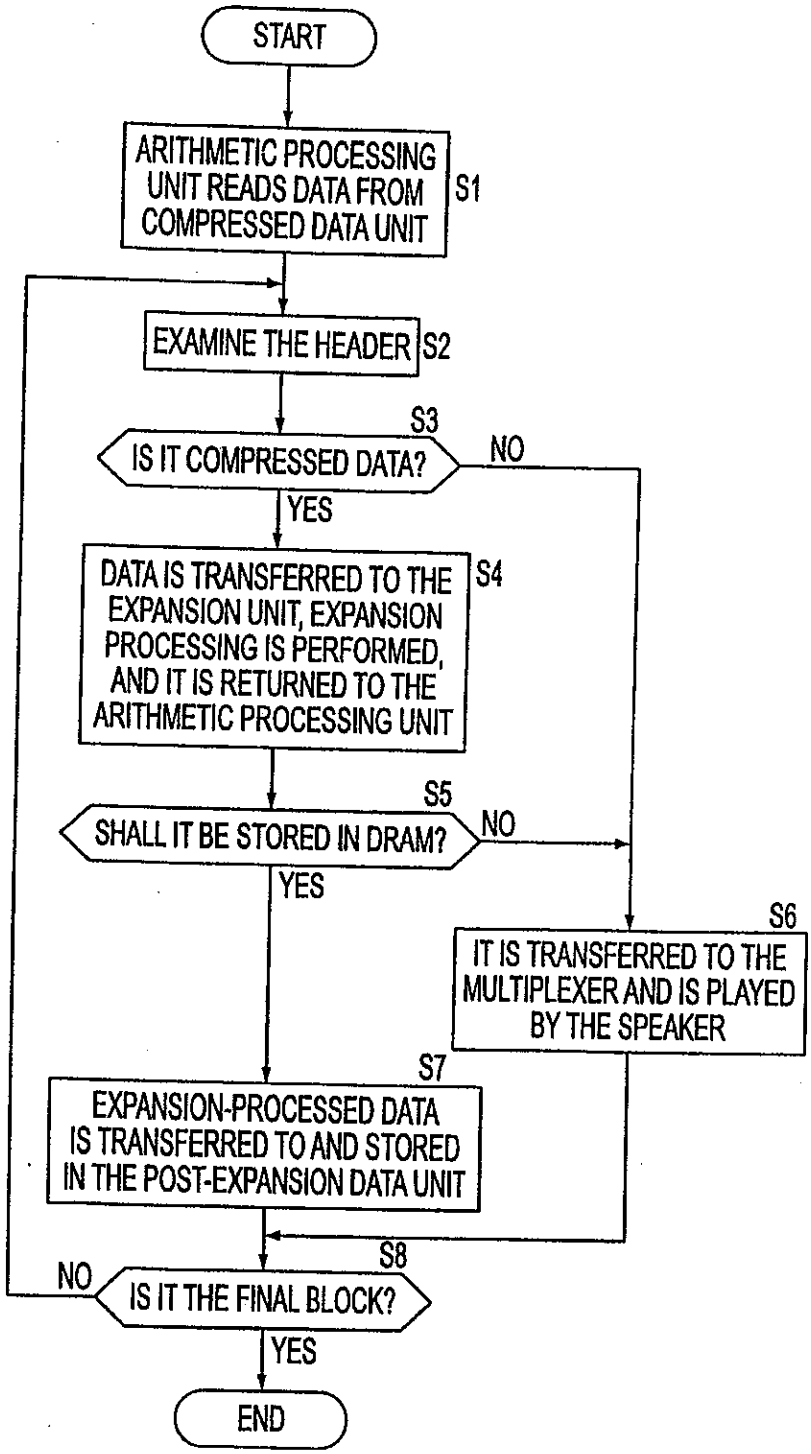

START
ARITHMETIC PROCESSING UNIT READS DATA FROM COMPRESSED DATA UNIT
S1
EXAMINE THE HEADER
S2
S3
IS IT COMPRESSED DATA?
NO
YES
DATA IS TRANSFERRED TO THE EXPANSION UNIT, EXPANSION PROCESSING IS PERFORMED, AND IT IS RETURNED TO THE ARITHMETIC PROCESSING UNIT
S4
S5
SHALL IT BE STORED IN DRAM?
NO
YES
S6
IT IS TRANSFERRED TO THE MULTIPLEXER AND IS PLAYED BY THE SPEAKER
S7
EXPANSION-PROCESSED DATA IS TRANSFERRED TO AND STORED IN THE POST-EXPANSION DATA UNIT
S8
NO
IS IT THE FINAL BLOCK?
YES
END

FIG. 6

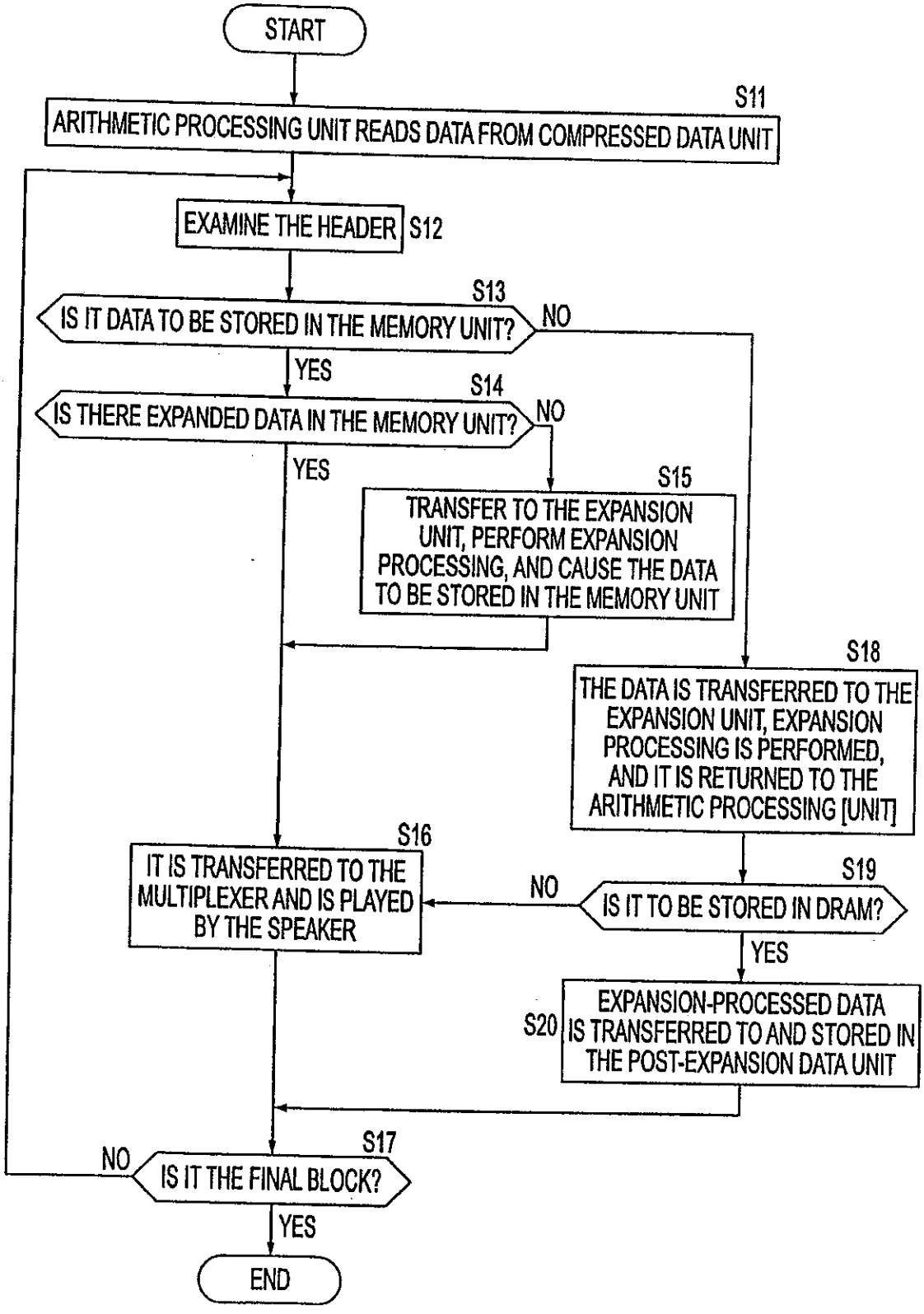

START
S11
ARITHMETIC PROCESSING UNIT READS DATA FROM COMPRESSED DATA UNIT
EXAMINE THE HEADER
S12
S13
IS IT DATA TO BE STORED IN THE MEMORY UNIT?
NO
YES
S14
IS THERE EXPANDED DATA IN THE MEMORY UNIT?
NO
YES
S15
TRANSFER TO THE EXPANSION UNIT, PERFORM EXPANSION PROCESSING, AND CAUSE THE DATA TO BE STORED IN THE MEMORY UNIT
S18
THE DATA IS TRANSFERRED TO THE EXPANSION UNIT, EXPANSION PROCESSING IS PERFORMED, AND IT IS RETURNED TO THE ARITHMETIC PROCESSING [UNIT]
S16
IT IS TRANSFERRED TO THE MULTIPLEXER AND IS PLAYED BY THE SPEAKER
NO
S19
IS IT TO BE STORED IN DRAM?
YES
S20
EXPANSION-PROCESSED DATA IS TRANSFERRED TO AND STORED IN THE POST-EXPANSION DATA UNIT
S17
NO
IS IT THE FINAL BLOCK?
YES
END

FIG. 9

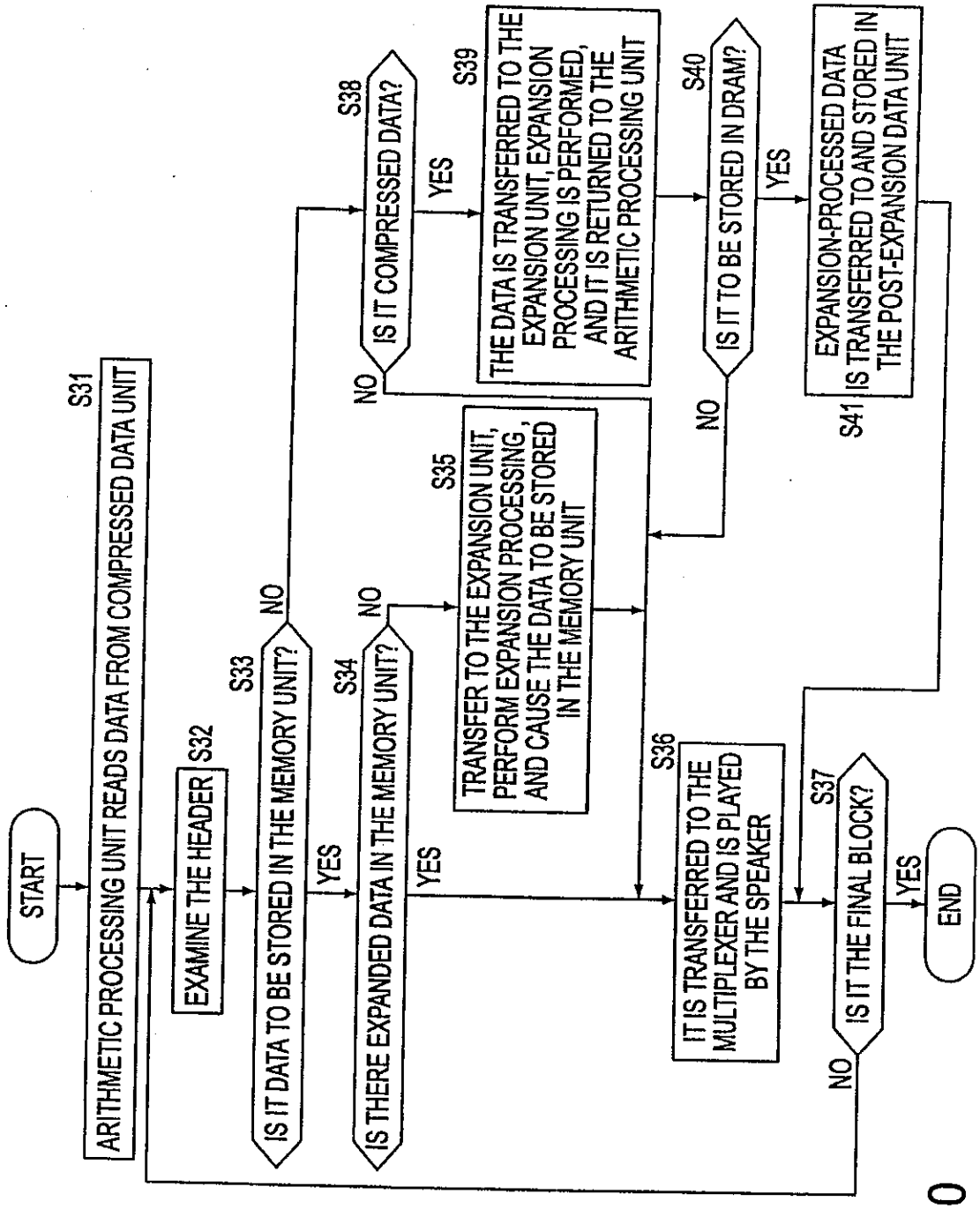

START
S31
ARITHMETIC PROCESSING UNIT READS DATA FROM COMPRESSED DATA UNIT
S32
EXAMINE THE HEADER
S33
IS IT DATA TO BE STORED IN THE MEMORY UNIT?
NO
YES
S34
IS THERE EXPANDED DATA IN THE MEMORY UNIT?
NO
YES
S35
TRANSFER TO THE EXPANSION UNIT, PERFORM EXPANSION PROCESSING, AND CAUSE THE DATA TO BE STORED IN THE MEMORY UNIT
S36
IT IS TRANSFERRED TO THE MULTIPLEXER AND IS PLAYED BY THE SPEAKER
S37
IS IT THE FINAL BLOCK?
NO
YES
END
S38
IS IT COMPRESSED DATA?
NO
YES
S39
THE DATA IS TRANSFERRED TO THE EXPANSION UNIT, EXPANSION PROCESSING IS PERFORMED, AND IT IS RETURNED TO THE ARITHMETIC PROCESSING UNIT
S40
IS IT TO BE STORED IN DRAM?
NO
YES
S41
EXPANSION-PROCESSED DATA IS TRANSFERRED TO AND STORED IN THE POST-EXPANSION DATA UNIT

FIG. 10