FIG. 1

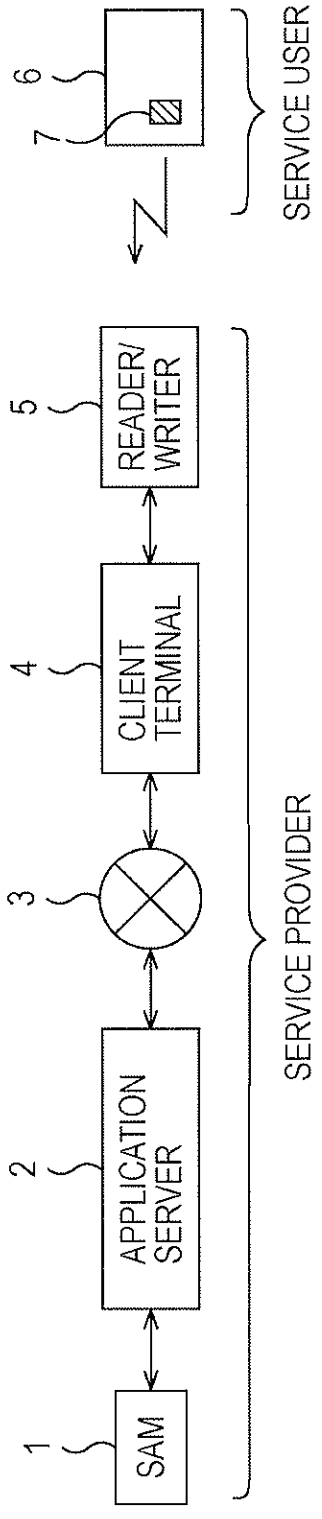

1
SAM
2
APPLICATION SERVER
3
4
CLIENT TERMINAL
5
READER/ WRITER
6
7
SERVICE PROVIDER
SERVICE USER

FIG. 2

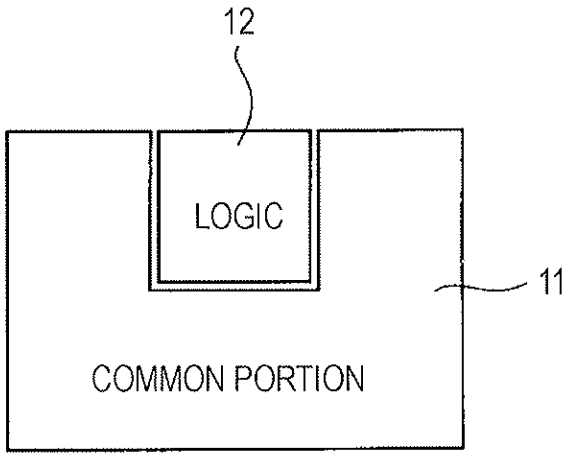


FIG. 3

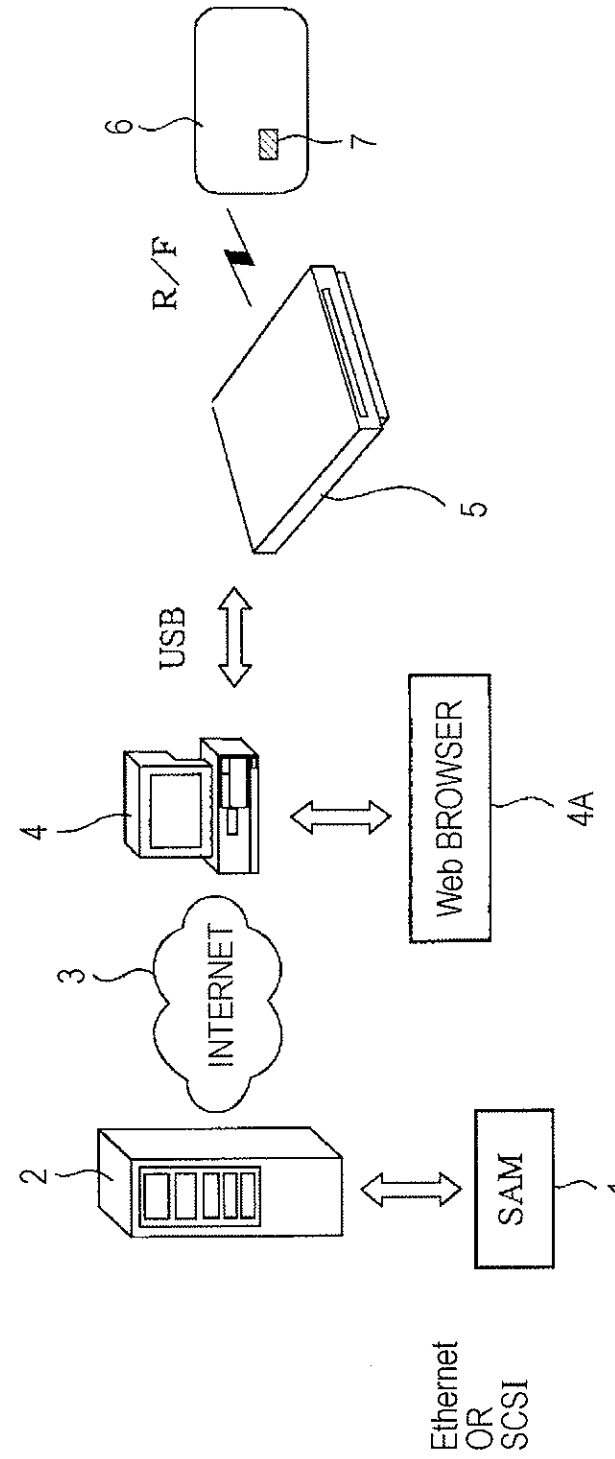


FIG. 4

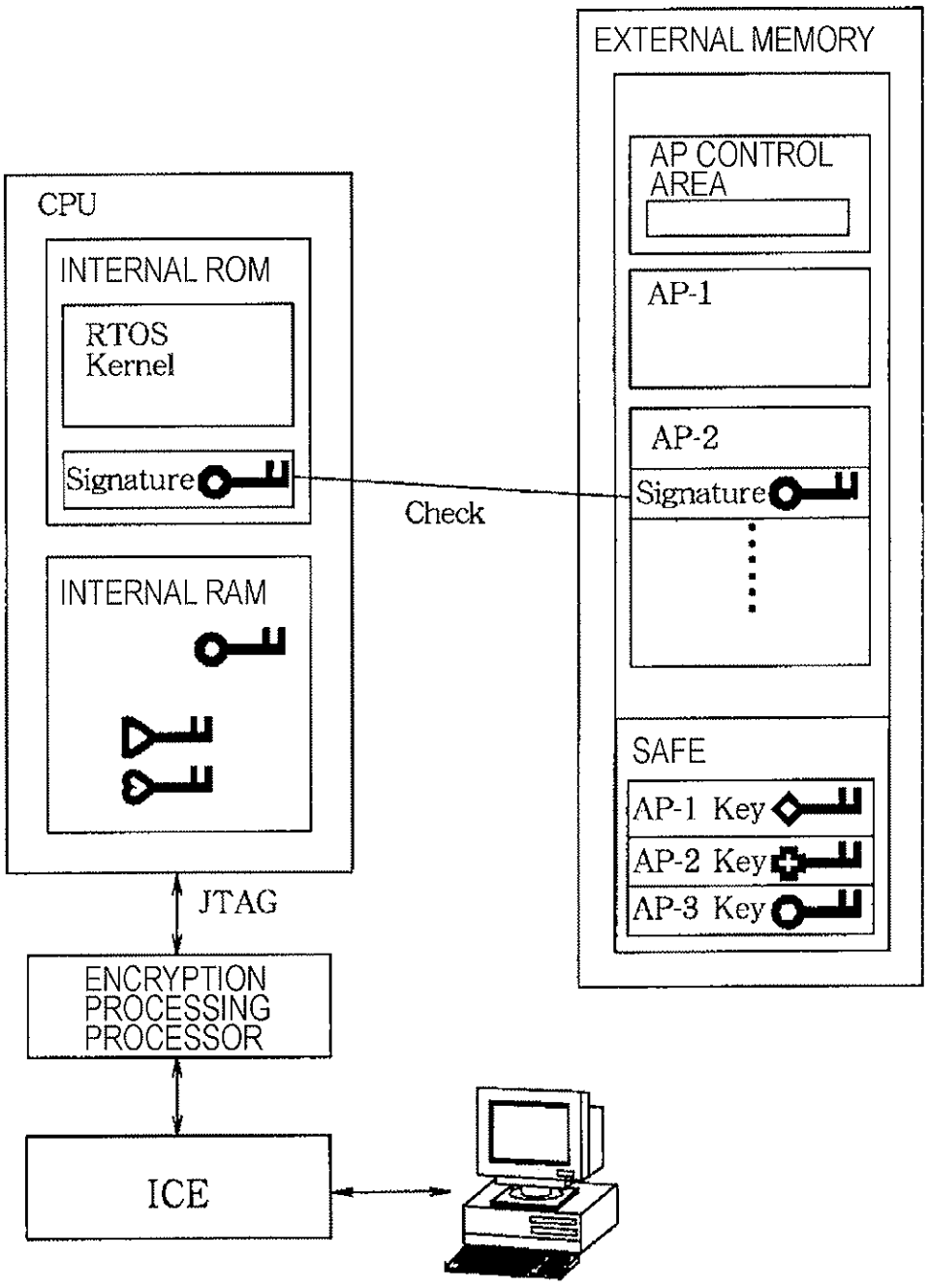

EXTERNAL MEMORY
AP CONTROL AREA
AP-1
AP-2
Signature
SAFE
AP-1 Key
AP-2 Key
AP-3 Key
CPU
INTERNAL ROM
RTOS Kernel
Signature
INTERNAL RAM
Check
JTAG
ENCRYPTION PROCESSING PROCESSOR
ICE

FIG. 5

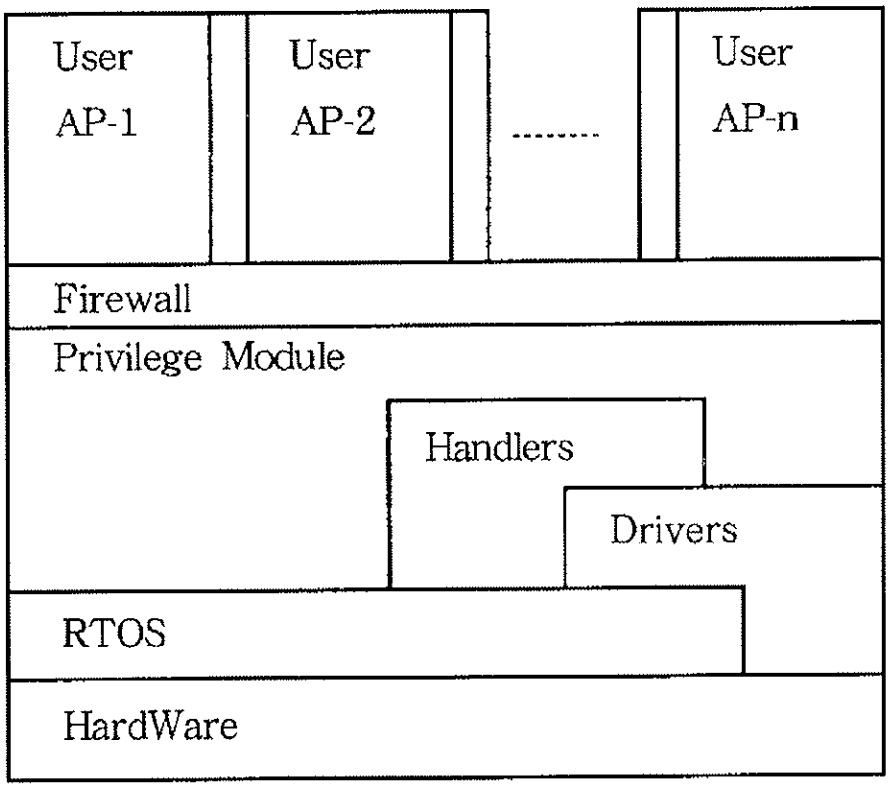

User
AP-1
User
AP-2
.....
User
AP-n
Firewall
Privilege Module
Handlers
Drivers
RTOS
HardWare

FIG. 6

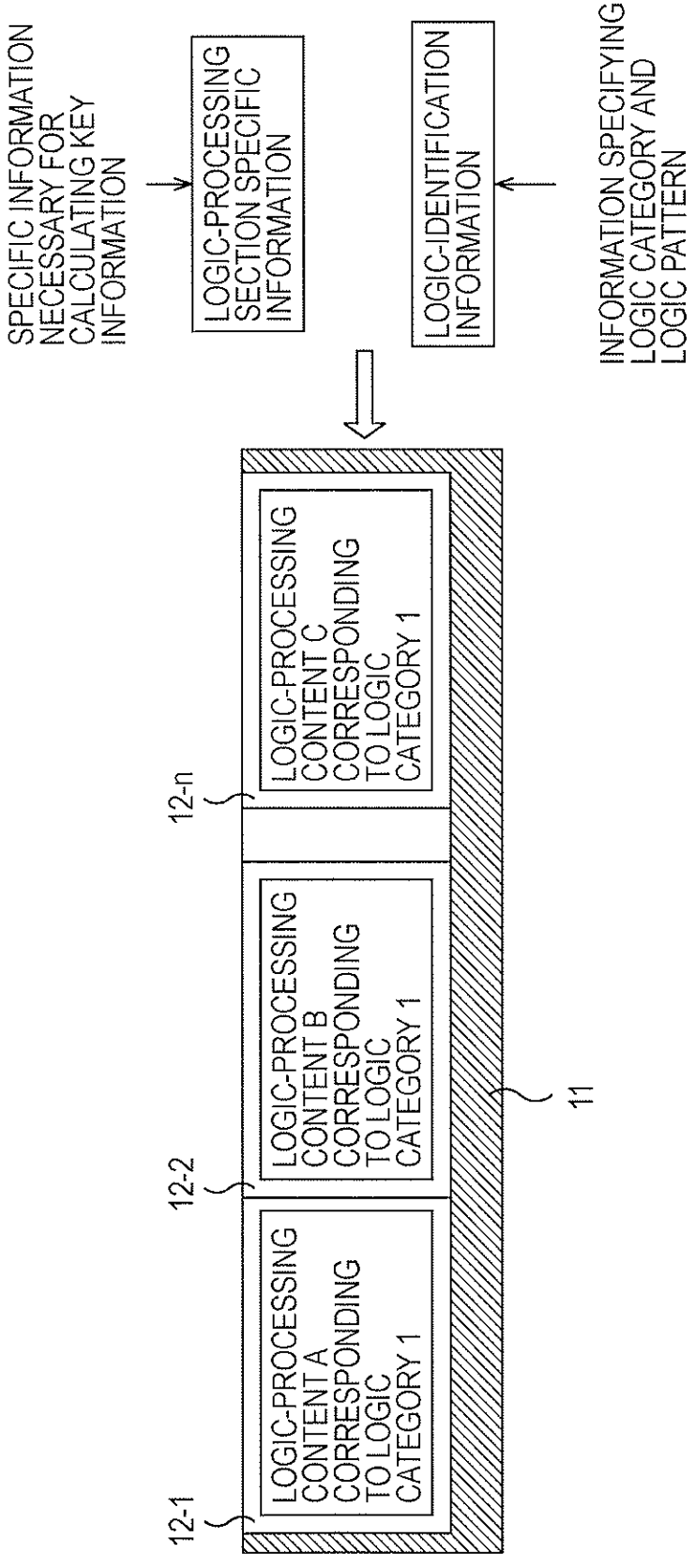

SPECIFIC INFORMATION NECESSARY FOR CALCULATING KEY INFORMATION
LOGIC-PROCESSING SECTION SPECIFIC INFORMATION
LOGIC-IDENTIFICATION INFORMATION
INFORMATION SPECIFYING LOGIC CATEGORY AND LOGIC PATTERN
12-1
LOGIC-PROCESSING CONTENT A CORRESPONDING TO LOGIC CATEGORY 1
12-2
LOGIC-PROCESSING CONTENT B CORRESPONDING TO LOGIC CATEGORY 1
12-n
LOGIC-PROCESSING CONTENT C CORRESPONDING TO LOGIC CATEGORY 1
11

FIG. 7

| LOGIC CATEGORY | LOGIC PATTERN | LOGIC-IDENTIFICATION INFORMATION | SERVICE PROVIDER |
|---|---|---|---|
| 1 | 1 | 00010001 | A |
| 1 | 2 | 00010002 | B |
| 2 | 1 | 00020001 | C |
| . . . | . . . | . . . | . . . |

FIG. 8

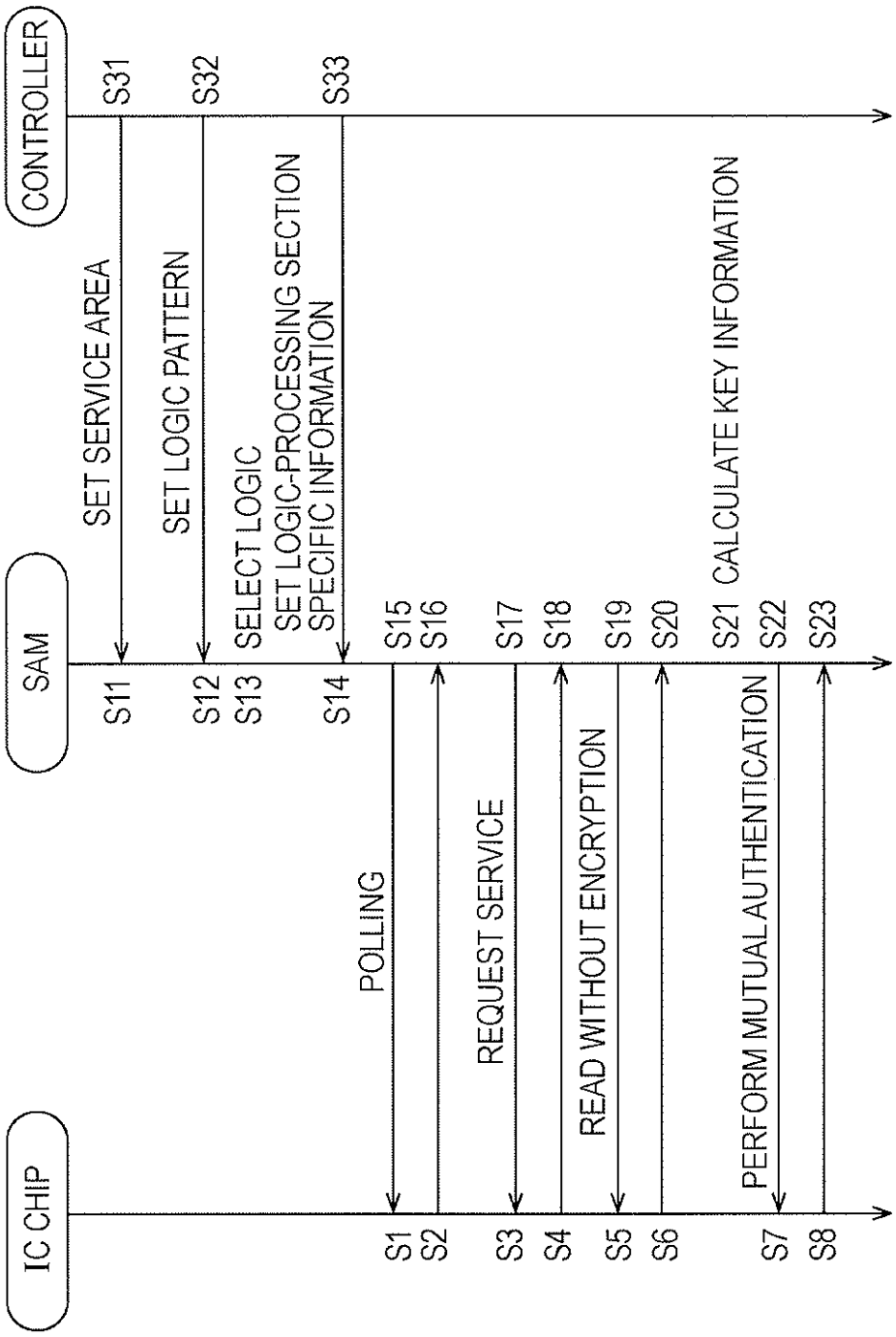

IC CHIP
SAM
CONTROLLER
SET SERVICE AREA
SET LOGIC PATTERN
SELECT LOGIC
SET LOGIC-PROCESSING SECTION SPECIFIC INFORMATION
POLLING
REQUEST SERVICE
READ WITHOUT ENCRYPTION
CALCULATE KEY INFORMATION
PERFORM MUTUAL AUTHENTICATION
S11
S12
S13
S14
S15
S16
S17
S18
S19
S20
S21
S22
S23
S1
S2
S3
S4
S5
S6
S7
S8
S31
S32
S33

FIG. 9

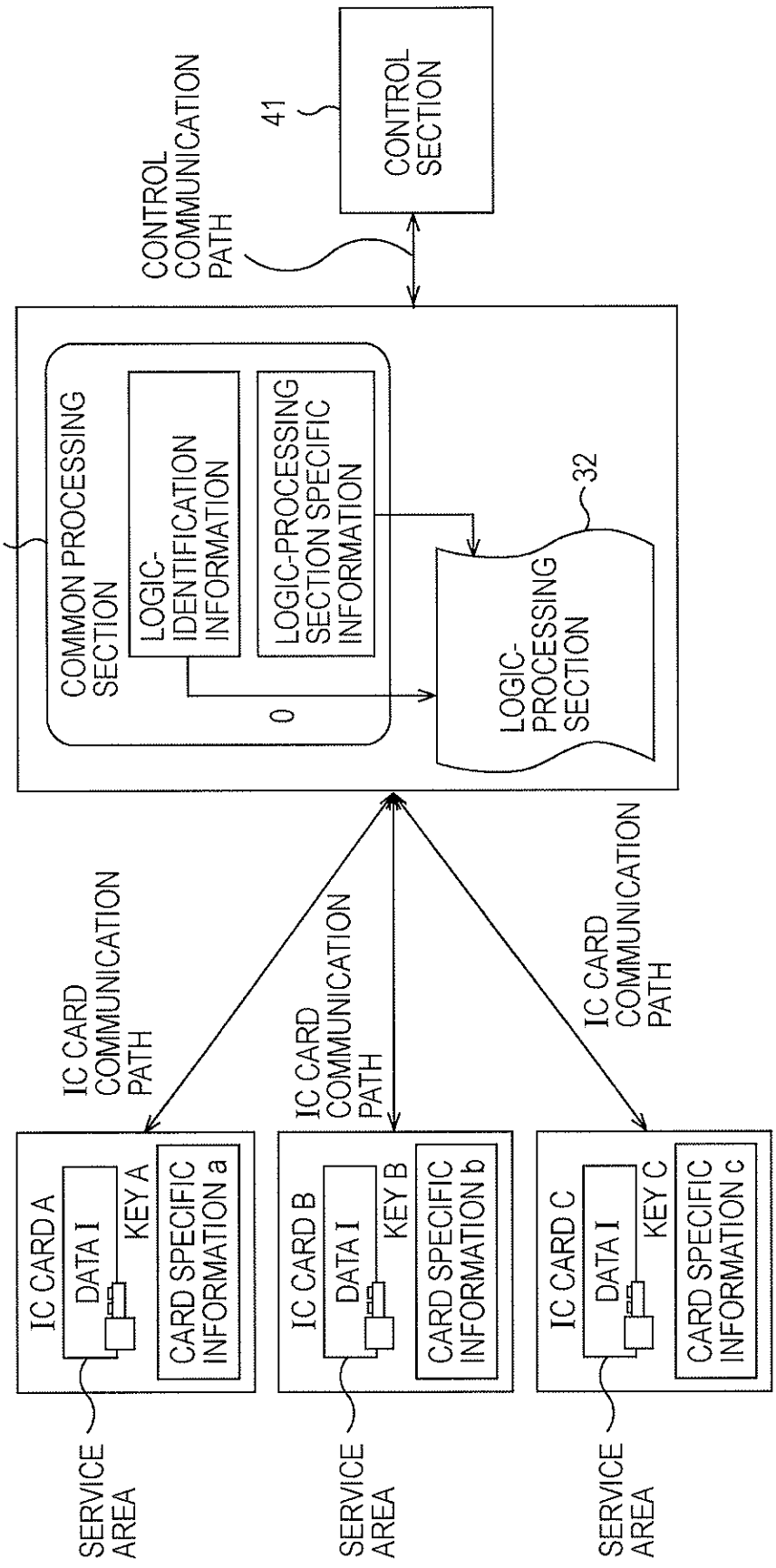

CONTROL SECTION
41
CONTROL COMMUNICATION PATH
COMMON PROCESSING SECTION
31
LOGIC-IDENTIFICATION INFORMATION
LOGIC-PROCESSING SECTION SPECIFIC INFORMATION
0
LOGIC-PROCESSING SECTION
32
IC CARD COMMUNICATION PATH
IC CARD COMMUNICATION PATH
IC CARD COMMUNICATION PATH
IC CARD A
DATA I
KEY A
CARD SPECIFIC INFORMATION a
IC CARD B
DATA I
KEY B
CARD SPECIFIC INFORMATION b
IC CARD C
DATA I
KEY C
CARD SPECIFIC INFORMATION c
SERVICE AREA
SERVICE AREA
SERVICE AREA

FIG. 10

| AREA | KEY |
|---|---|
| DATA I IN IC CARD A | 12345678h (KEY A) |
| DATA I IN IC CARD B | 81234567h (KEY B) |
| DATA I IN IC CARD C | 78123456h (KEY C) |

FIG. 11

| CARD | SPECIFIC INFORMATION |
|---|---|
| SPECIFIC INFORMATION a IN IC CARD A | 1h (VALUE a) |
| SPECIFIC INFORMATION b IN IC CARD B | 2h (VALUE b) |
| SPECIFIC INFORMATION c IN IC CARD C | 3h (VALUE c) |

FIG. 12

| AREA | ADDITIONAL INFORMATION 1 |
|---|---|
| DATA I IN IC CARD A | 1h (VALUE I1) |
| DATA I IN IC CARD B | 1h (VALUE I1) |
| DATA I IN IC CARD C | 1h (VALUE I1) |



FIG. 13

| STORED IN SAM | SPECIFIC INFORMATION (KEY D) |
|---|---|
| LOGIC-PROCESSING SECTION SPECIFIC INFORMATION | 34567812h (KEY D) |

FIG. 14

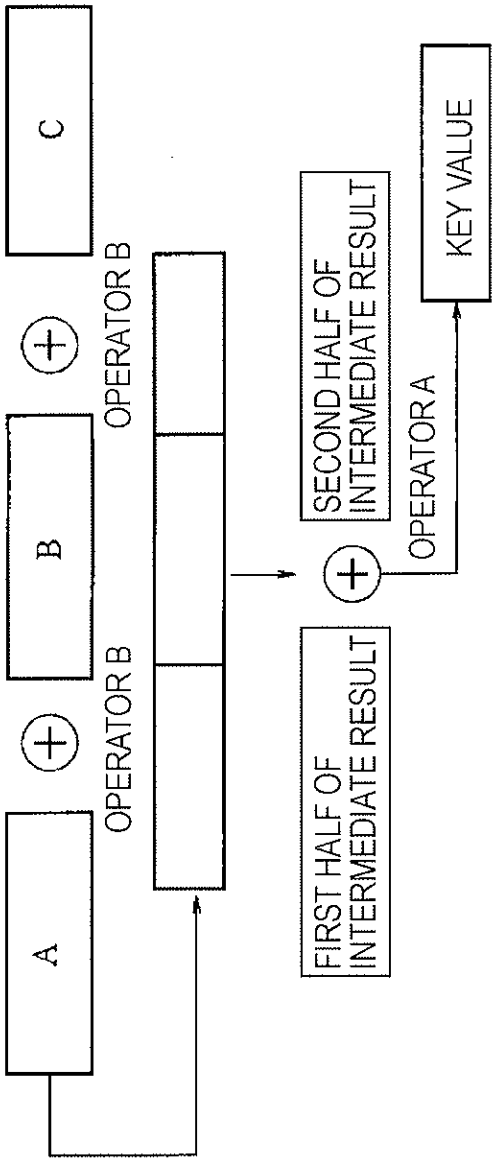

A
OPERATOR B
B
OPERATOR B
C
FIRST HALF OF INTERMEDIATE RESULT
SECOND HALF OF INTERMEDIATE RESULT
OPERATOR A
KEY VALUE

FIG. 15

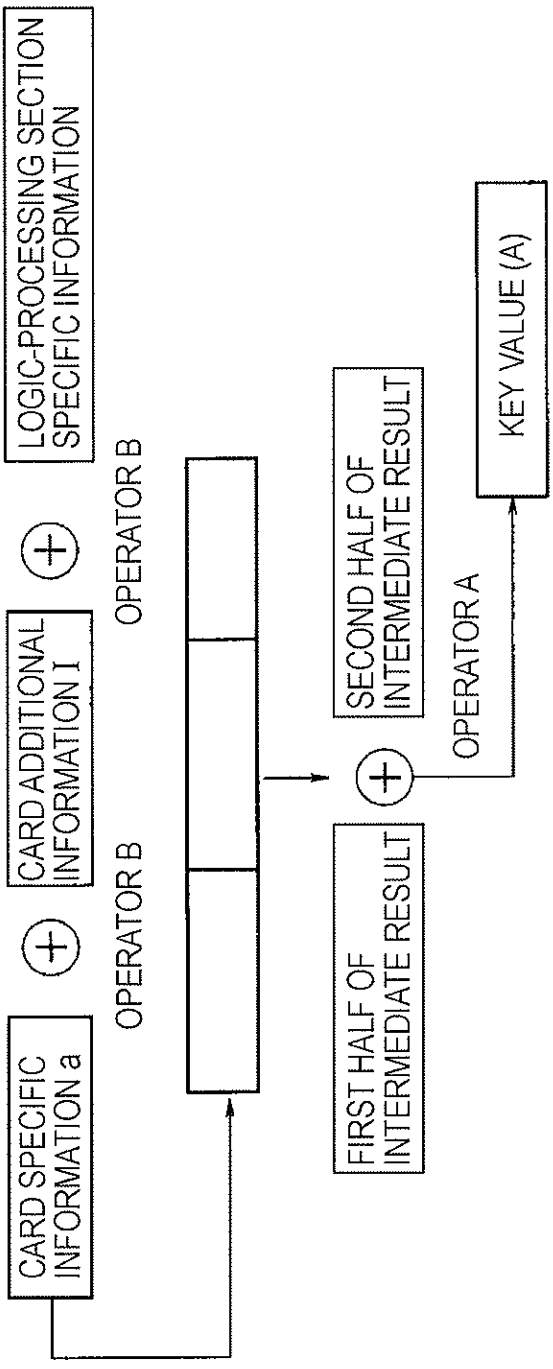

CARD SPECIFIC INFORMATION a
OPERATOR B
CARD ADDITIONAL INFORMATION I
OPERATOR B
LOGIC-PROCESSING SECTION SPECIFIC INFORMATION
FIRST HALF OF INTERMEDIATE RESULT
SECOND HALF OF INTERMEDIATE RESULT
OPERATOR A
KEY VALUE (A)

FIG. 16

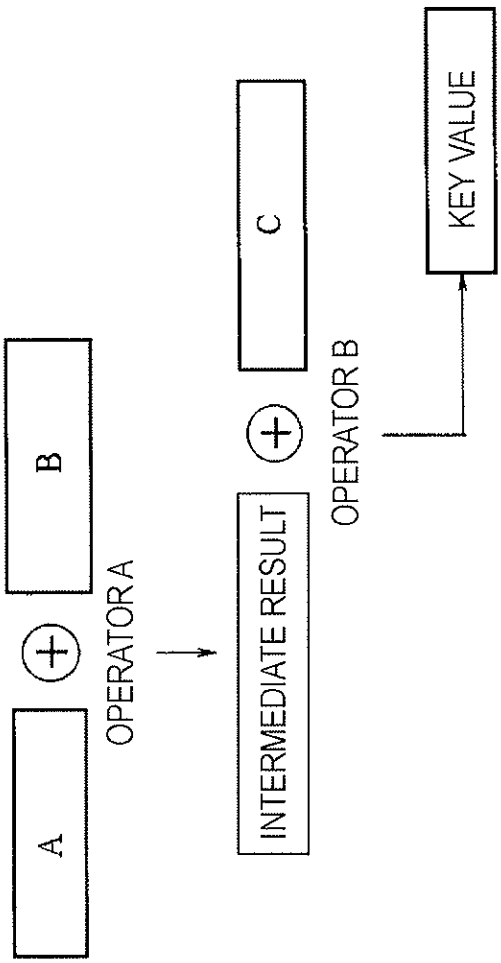


FIG. 17

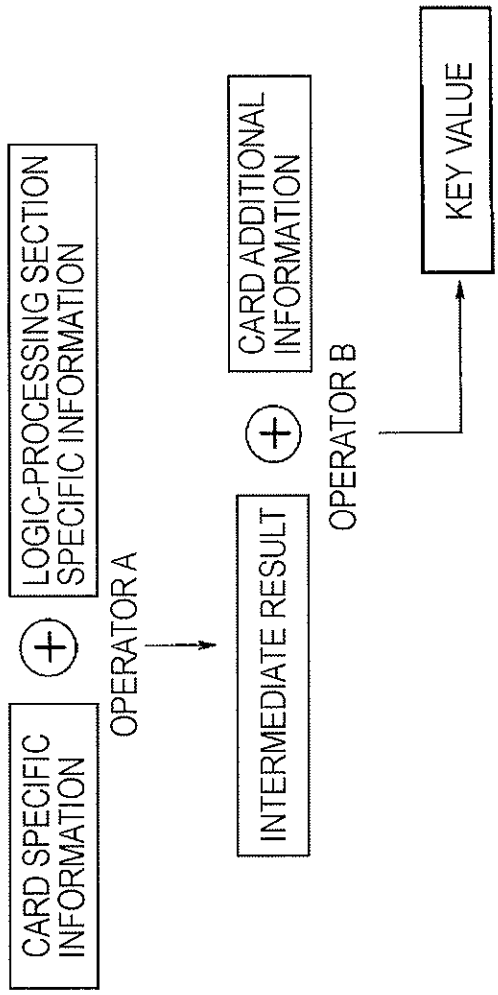

CARD SPECIFIC INFORMATION
LOGIC-PROCESSING SECTION SPECIFIC INFORMATION
OPERATOR A
INTERMEDIATE RESULT
CARD ADDITIONAL INFORMATION
OPERATOR B
KEY VALUE

FIG. 18

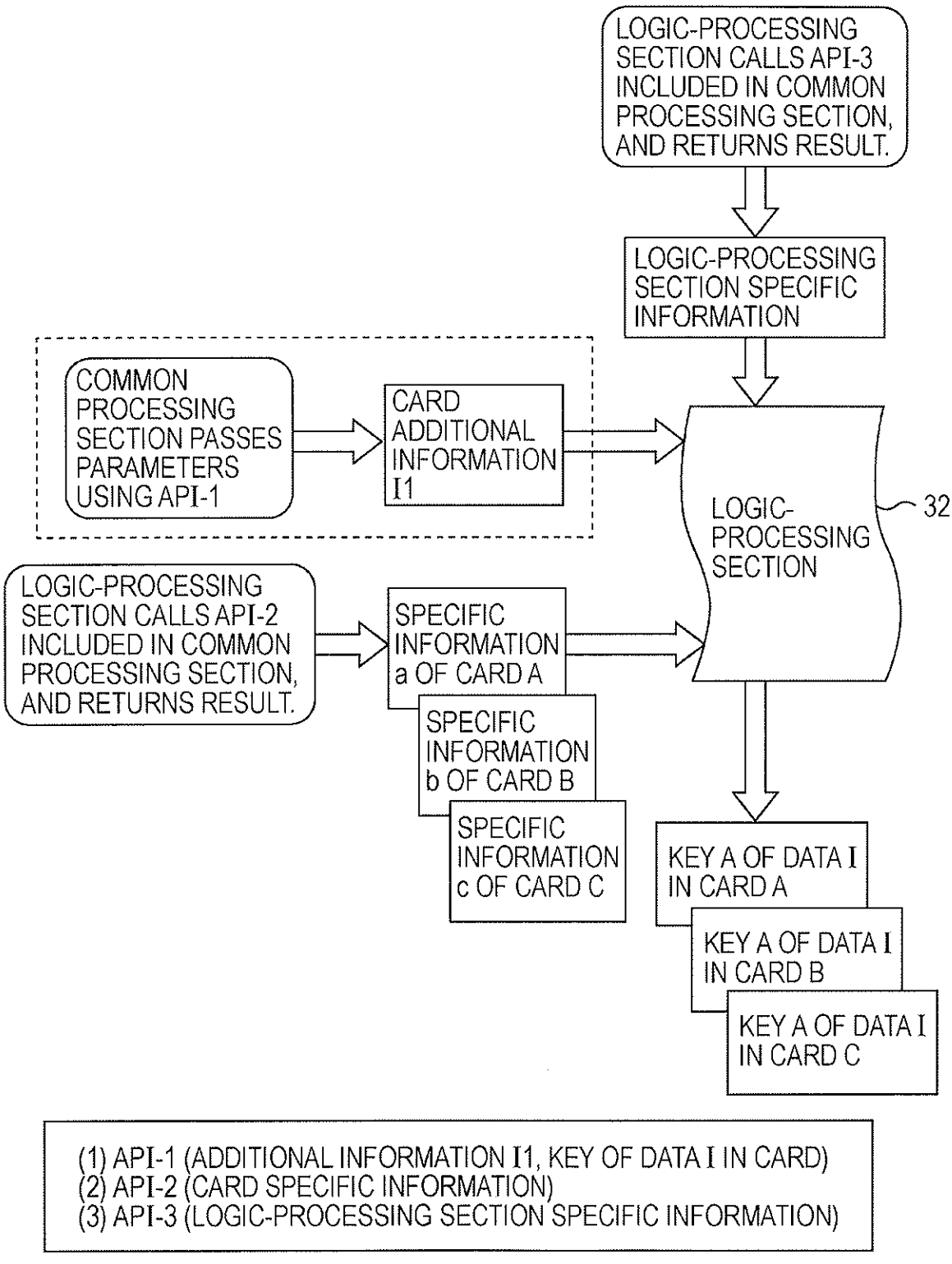

LOGIC-PROCESSING SECTION CALLS API-3 INCLUDED IN COMMON PROCESSING SECTION, AND RETURNS RESULT.
LOGIC-PROCESSING SECTION SPECIFIC INFORMATION
COMMON PROCESSING SECTION PASSES PARAMETERS USING API-1
CARD ADDITIONAL INFORMATION I1
LOGIC-PROCESSING SECTION
32
LOGIC-PROCESSING SECTION CALLS API-2 INCLUDED IN COMMON PROCESSING SECTION, AND RETURNS RESULT.
SPECIFIC INFORMATION a OF CARD A
SPECIFIC INFORMATION b OF CARD B
SPECIFIC INFORMATION c OF CARD C
KEY A OF DATA I IN CARD A
KEY A OF DATA I IN CARD B
KEY A OF DATA I IN CARD C
(1) API-1 (ADDITIONAL INFORMATION I1, KEY OF DATA I IN CARD)
(2) API-2 (CARD SPECIFIC INFORMATION)
(3) API-3 (LOGIC-PROCESSING SECTION SPECIFIC INFORMATION)

FIG. 19

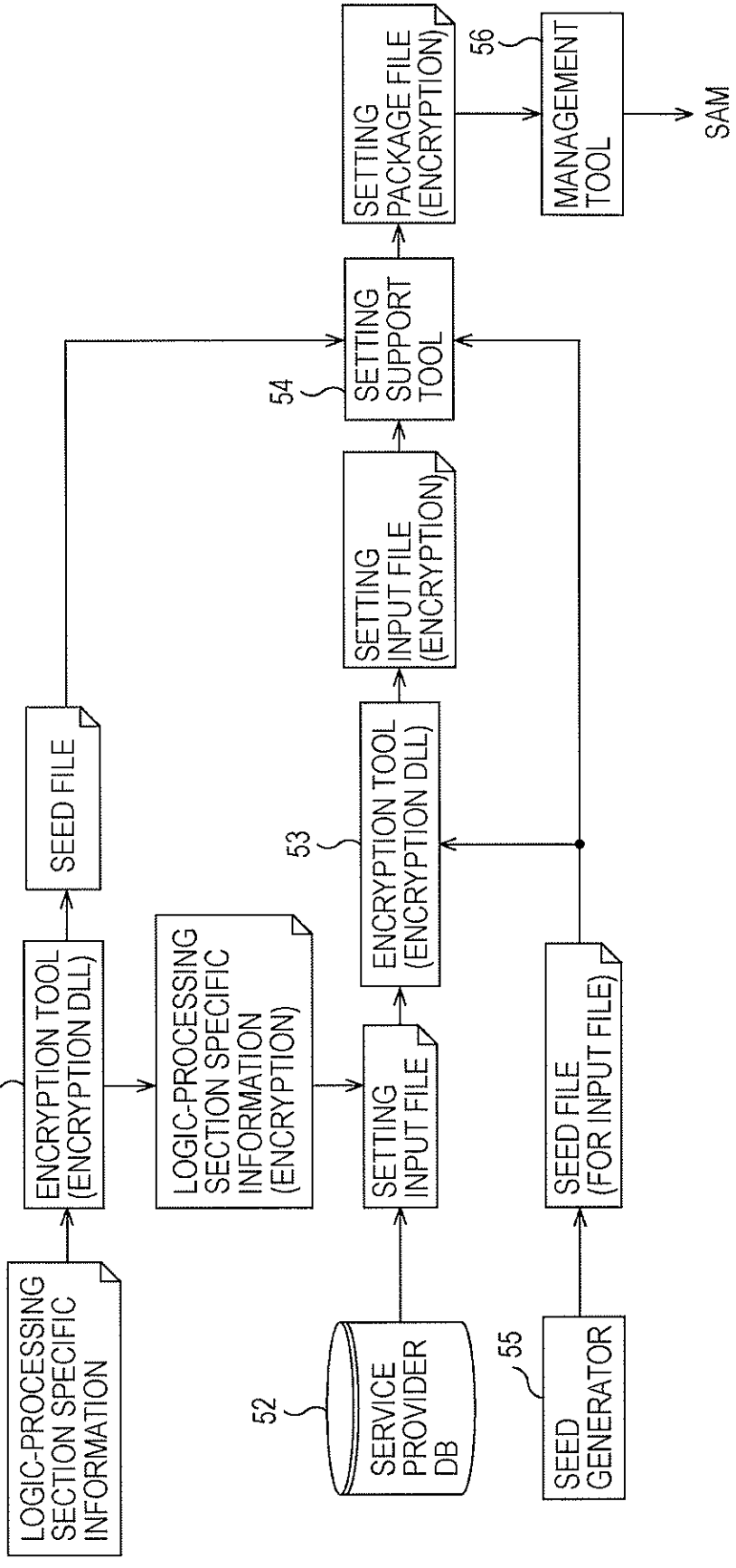

LOGIC-PROCESSING SECTION SPECIFIC INFORMATION
51
ENCRYPTION TOOL (ENCRYPTION DLL)
SEED FILE
LOGIC-PROCESSING SECTION SPECIFIC INFORMATION (ENCRYPTION)
52
SERVICE PROVIDER DB
SETTING INPUT FILE
53
ENCRYPTION TOOL (ENCRYPTION DLL)
SETTING INPUT FILE (ENCRYPTION)
54
SETTING SUPPORT TOOL
SETTING PACKAGE FILE (ENCRYPTION)
55
SEED GENERATOR
SEED FILE (FOR INPUT FILE)
56
MANAGEMENT TOOL
SAM

FIG. 20

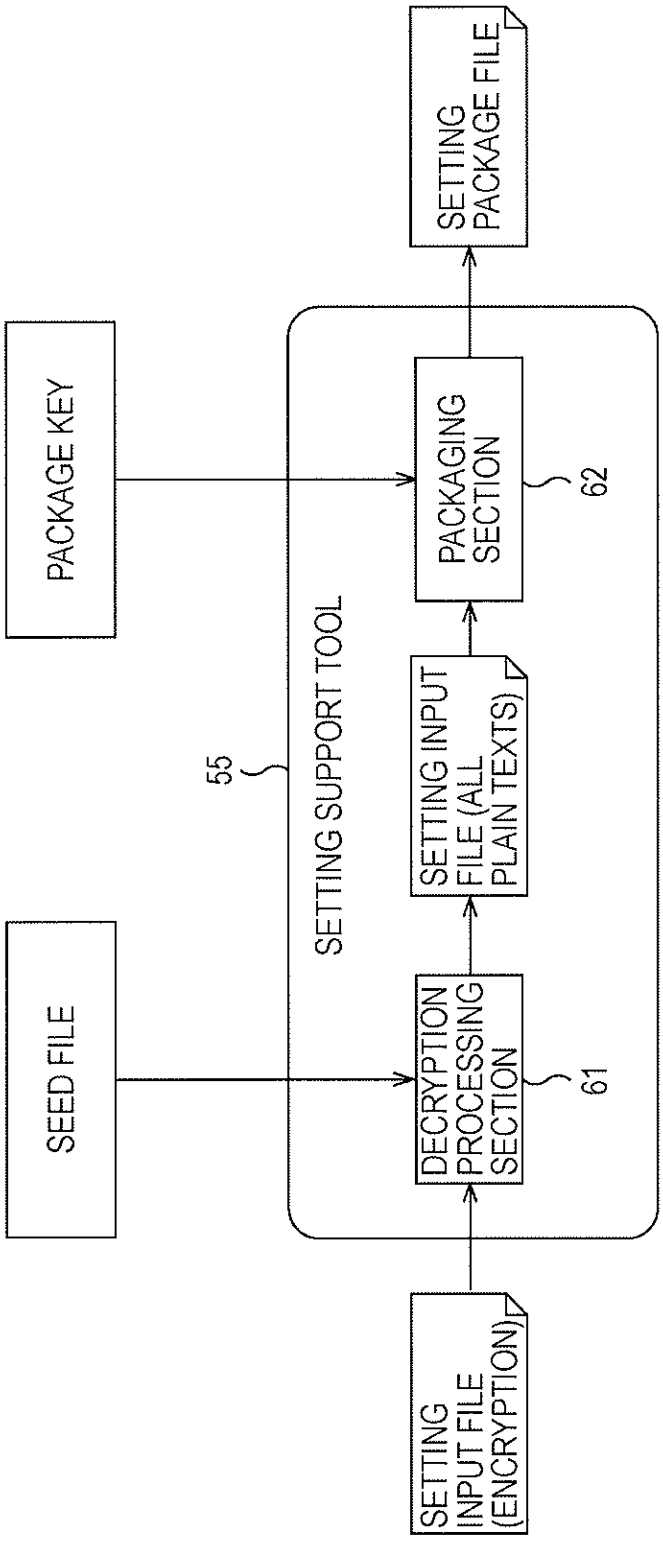
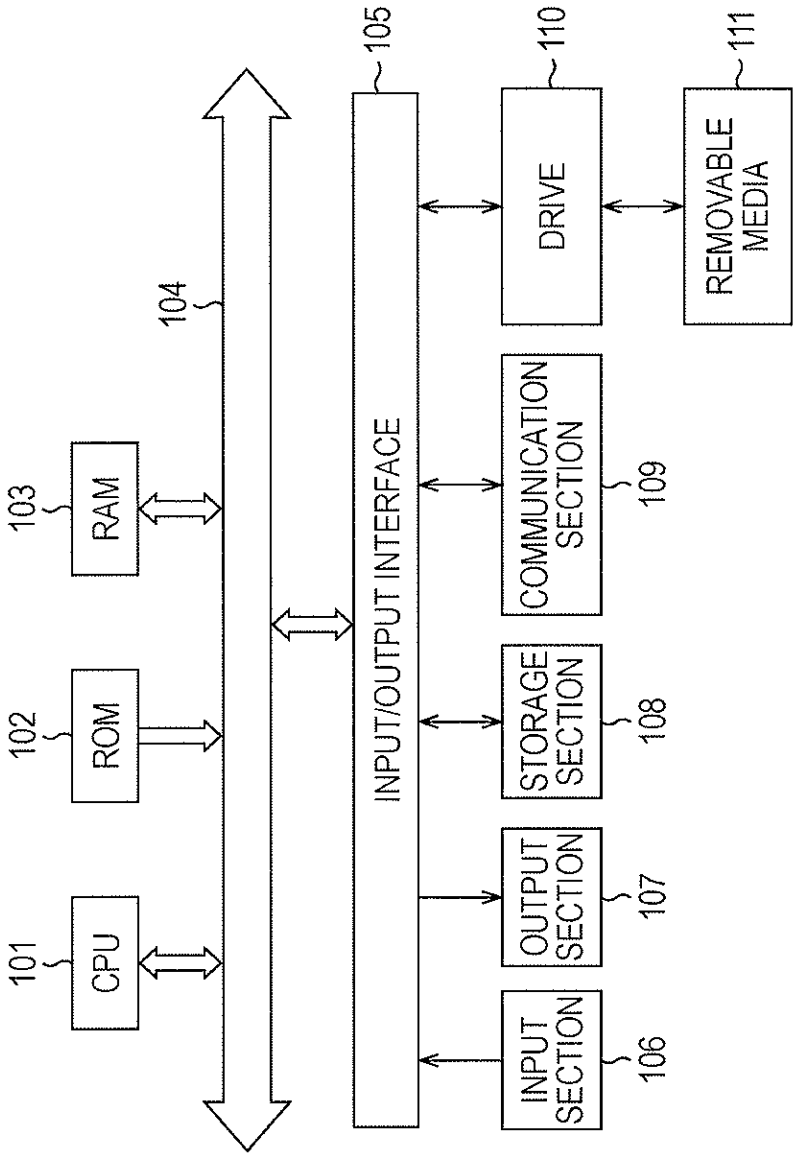

SETTING INPUT FILE (ENCRYPTION)
SEED FILE
PACKAGE KEY
55
SETTING SUPPORT TOOL
DECRYPTION PROCESSING SECTION
61
SETTING INPUT FILE (ALL PLAIN TEXTS)
PACKAGING SECTION
62
SETTING PACKAGE FILE

FIG. 21


101
CPU
102
ROM
103
RAM
104
105
INPUT/OUTPUT INTERFACE
106
INPUT SECTION
107
OUTPUT SECTION
108
STORAGE SECTION
109
COMMUNICATION SECTION
110
DRIVE
111
REMOVABLE MEDIA