DEFENSIVE PUBLICATION

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MULTIPROCESSOR INTERFACING APPARATUS

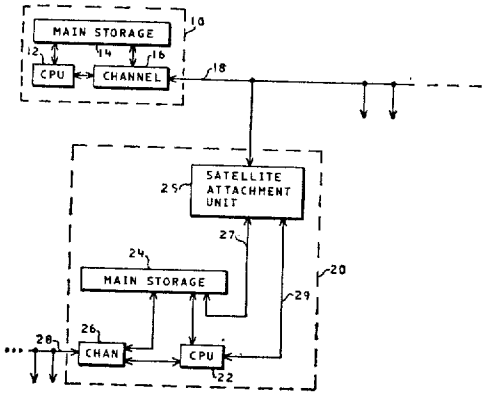
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Continuation of application Ser. No. 374,448, June 28, 1973, This application July 29, 1975, Ser. No. 600,181

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U.S. Cl. 340—172.5

4 Sheets Drawing. 20 Pages of Specification



A host data processing system communicates through a channel to a subsystem capable of performing autonomous tasks. The host processor provides a special control command in association with a data set defining the tasks to be performed with both this command and the data set being transferred through the channel to the subsystem. An interfacting adapter recognizes the presence of the special command to provide a response to the channel relieving it of further connection to the subsystem after the task defining data set transfer is completed. Execution of the task defined by the data set in the subsystem causes he adapter to return a signal to the channel indicative that the task has been performed. The channel can then notify the host processing system or, if command chaining is indicated, can immediately proceed to transfer data reflecting the results of the task performance to the host processing system.

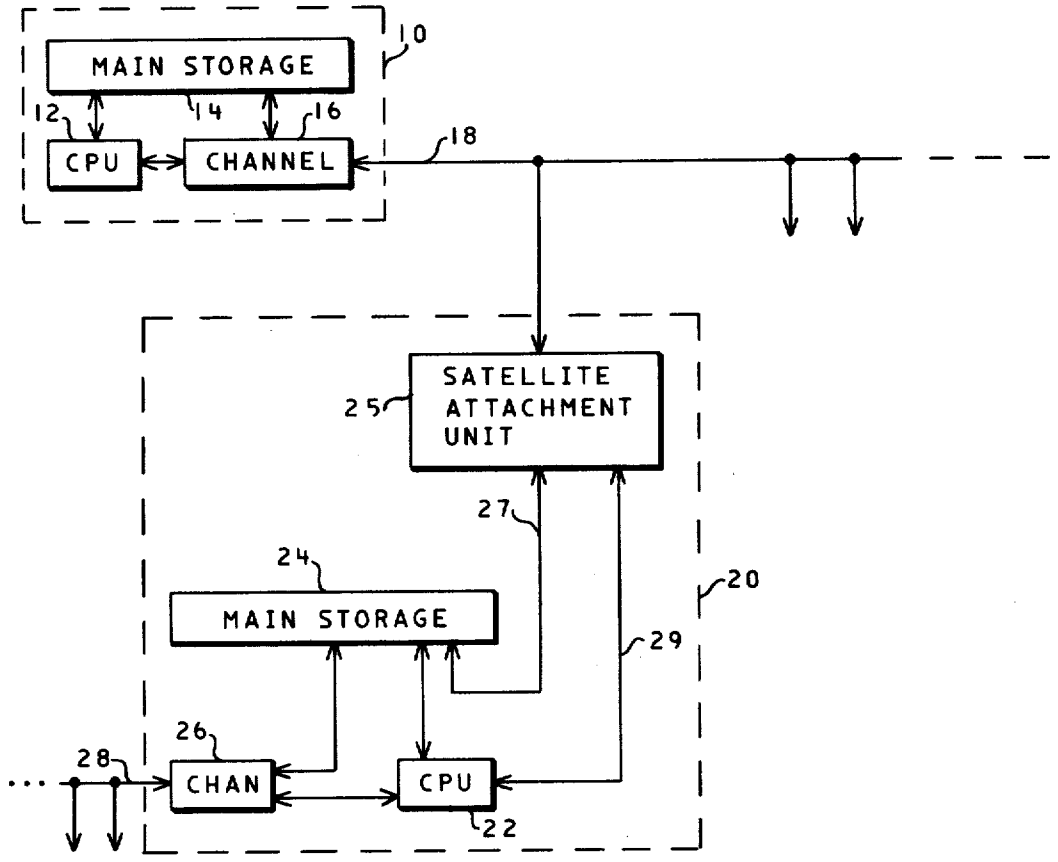

MAIN STORAGE
10
12
14
16
CPU
CHANNEL
18
SATELLITE ATTACHMENT UNIT
25
27
24
MAIN STORAGE
20
29
26
28
CHAN
CPU
22

FIG 1

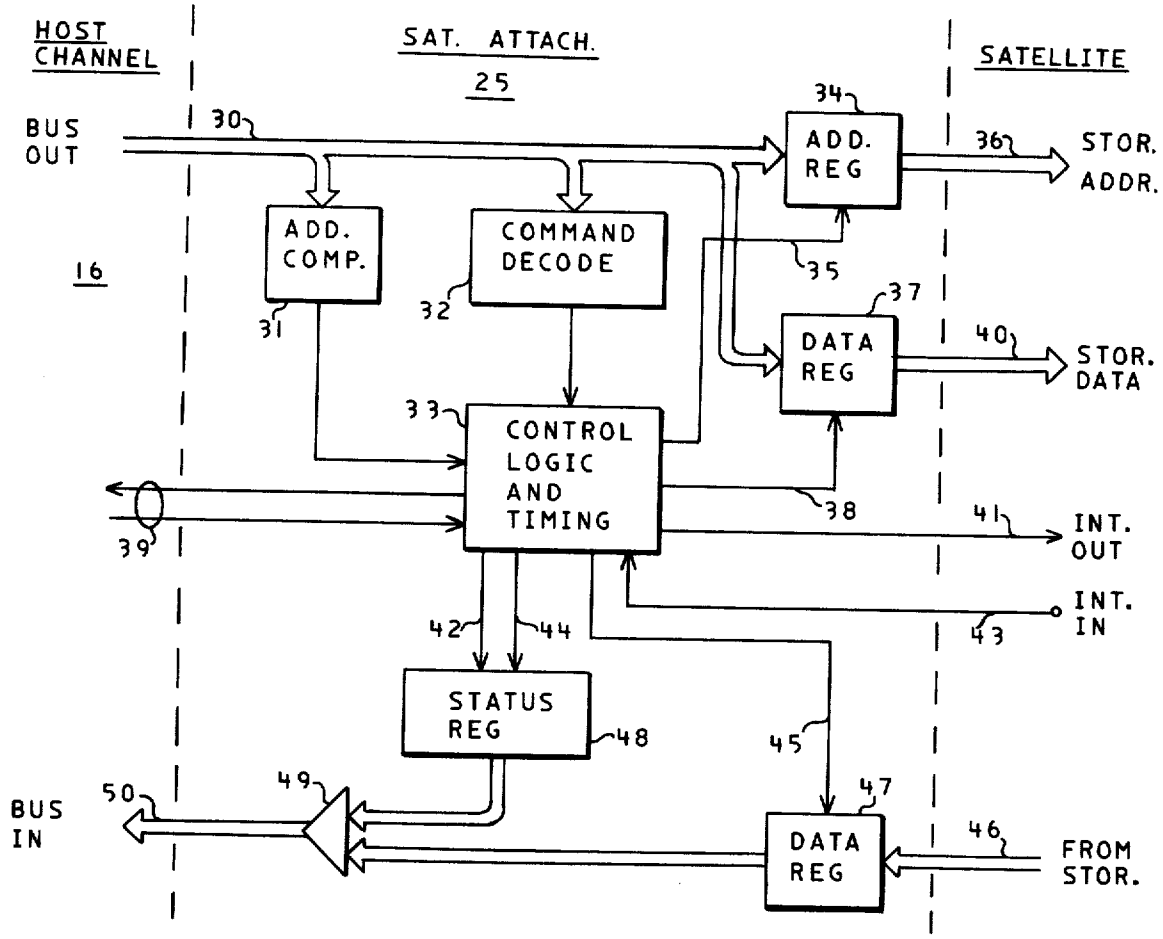

HOST CHANNEL
SAT. ATTACH. 25
SATELLITE
BUS OUT
30
34
ADD. REG
36
STOR. ADDR.
16
ADD. COMP.
31
COMMAND DECODE
32
35
37
DATA REG
40
STOR. DATA
33
CONTROL LOGIC AND TIMING
38
39
41
INT. OUT
INT. IN
43
42
44
STATUS REG
48
45
BUS IN
50
49
47
DATA REG
46
FROM STOR.

FIG 2

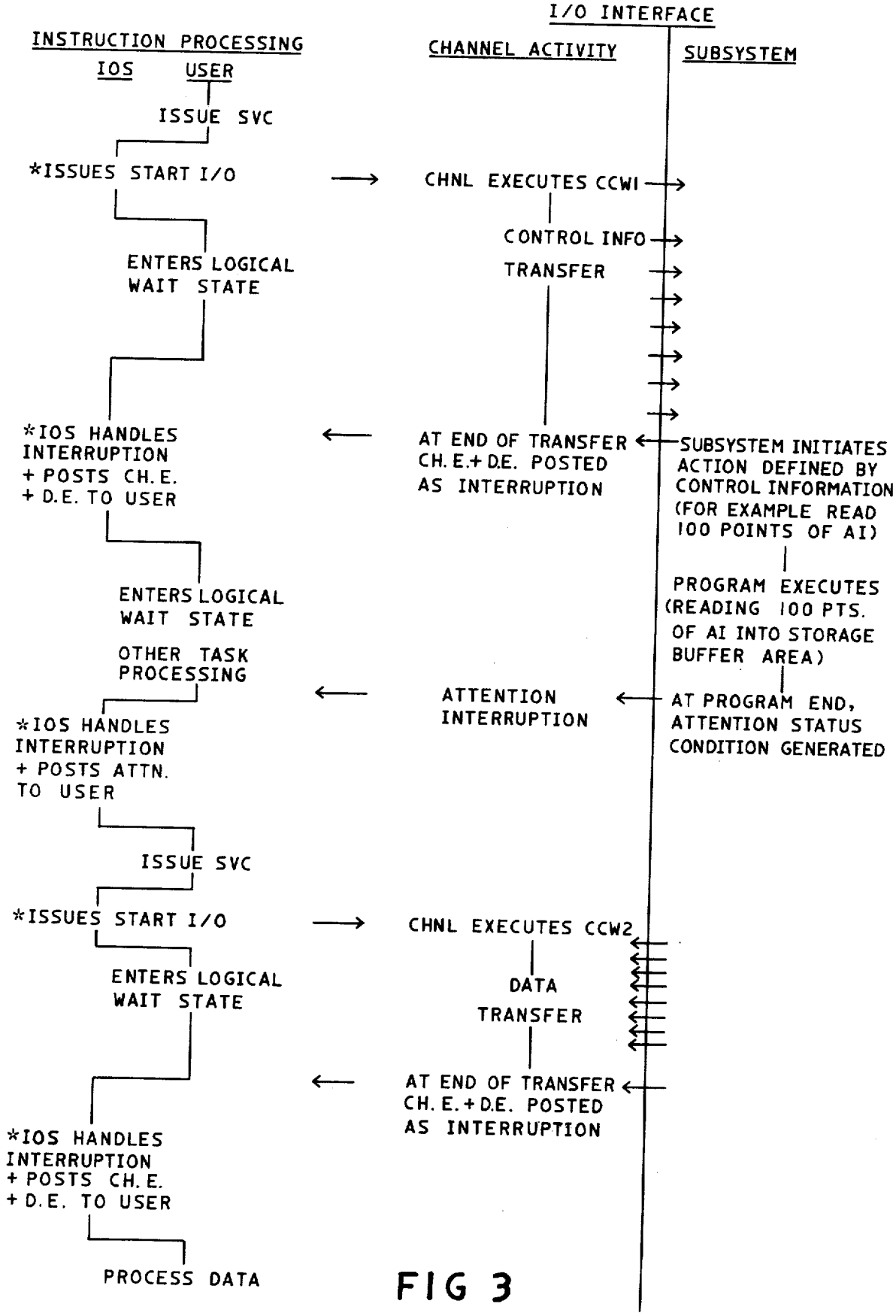

I/O INTERFACE
INSTRUCTION PROCESSING
IOS
USER
CHANNEL ACTIVITY
SUBSYSTEM
ISSUE SVC
*ISSUES START I/O
CHNL EXECUTES CCW1
CONTROL INFO
TRANSFER
ENTERS LOGICAL WAIT STATE
*IOS HANDLES INTERRUPTION + POSTS CH. E. + D.E. TO USER
AT END OF TRANSFER CH. E.+ D.E. POSTED AS INTERRUPTION
SUBSYSTEM INITIATES ACTION DEFINED BY CONTROL INFORMATION (FOR EXAMPLE READ 100 POINTS OF AI)
PROGRAM EXECUTES (READING 100 PTS. OF AI INTO STORAGE BUFFER AREA)
ENTERS LOGICAL WAIT STATE
OTHER TASK PROCESSING
ATTENTION INTERRUPTION
AT PROGRAM END, ATTENTION STATUS CONDITION GENERATED
*IOS HANDLES INTERRUPTION + POSTS ATTN. TO USER
ISSUE SVC
*ISSUES START I/O
CHNL EXECUTES CCW2
ENTERS LOGICAL WAIT STATE
DATA TRANSFER
AT END OF TRANSFER CH. E.+ D.E. POSTED AS INTERRUPTION
*IOS HANDLES INTERRUPTION + POSTS CH. E. + D.E. TO USER
PROCESS DATA

FIG 3

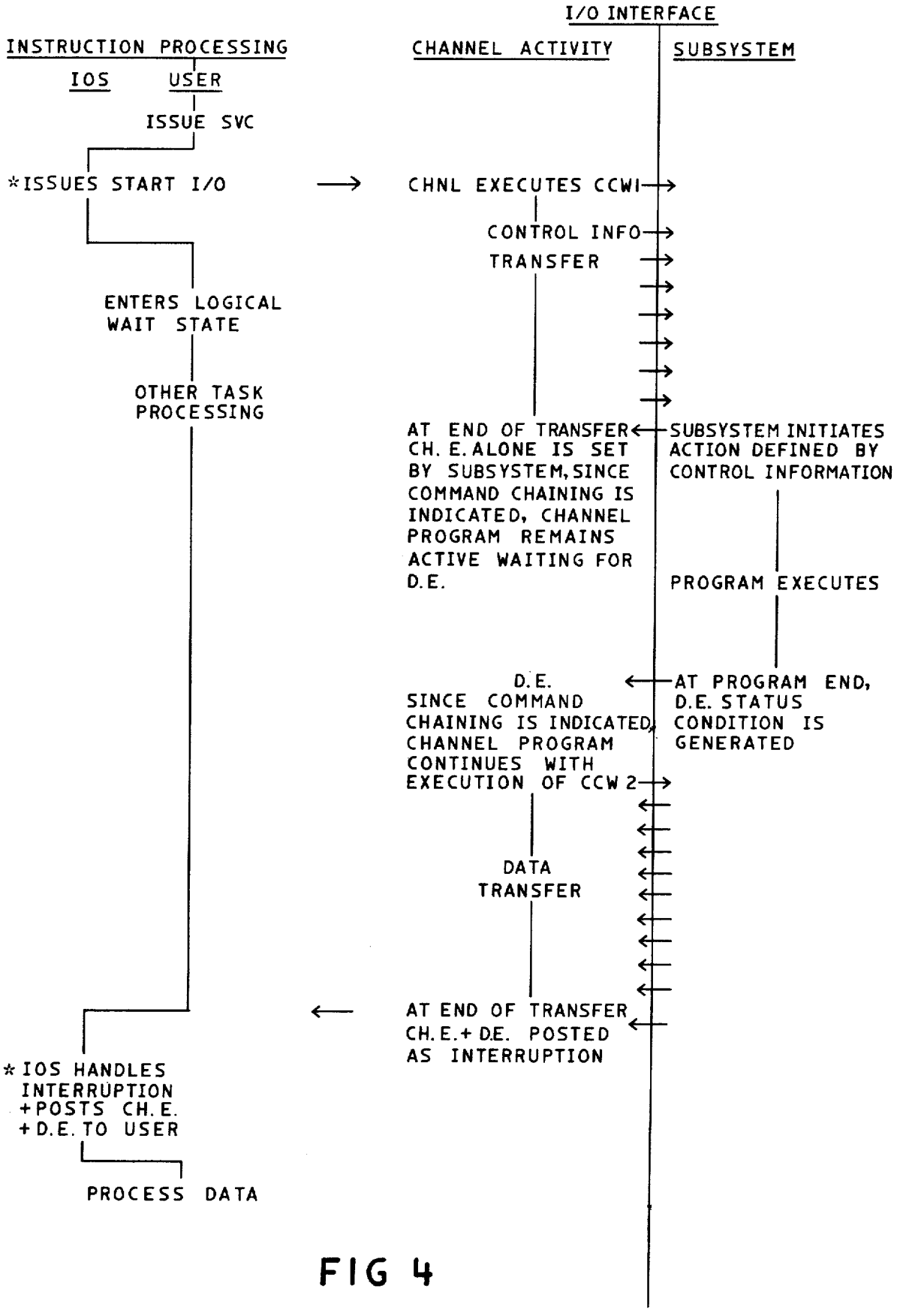

I/O INTERFACE
INSTRUCTION PROCESSING
IOS
USER
ISSUE SVC
*ISSUES START I/O
ENTERS LOGICAL WAIT STATE
OTHER TASK PROCESSING
* IOS HANDLES INTERRUPTION + POSTS CH. E. + D.E. TO USER
PROCESS DATA
CHANNEL ACTIVITY
SUBSYSTEM
CHNL EXECUTES CCW1
CONTROL INFO TRANSFER
AT END OF TRANSFER CH. E. ALONE IS SET BY SUBSYSTEM, SINCE COMMAND CHAINING IS INDICATED, CHANNEL PROGRAM REMAINS ACTIVE WAITING FOR D.E.
SUBSYSTEM INITIATES ACTION DEFINED BY CONTROL INFORMATION
PROGRAM EXECUTES
D.E. SINCE COMMAND CHAINING IS INDICATED, CHANNEL PROGRAM CONTINUES WITH EXECUTION OF CCW 2
AT PROGRAM END, D.E. STATUS CONDITION IS GENERATED
DATA TRANSFER
AT END OF TRANSFER CH. E. + D.E. POSTED AS INTERRUPTION

FIG 4