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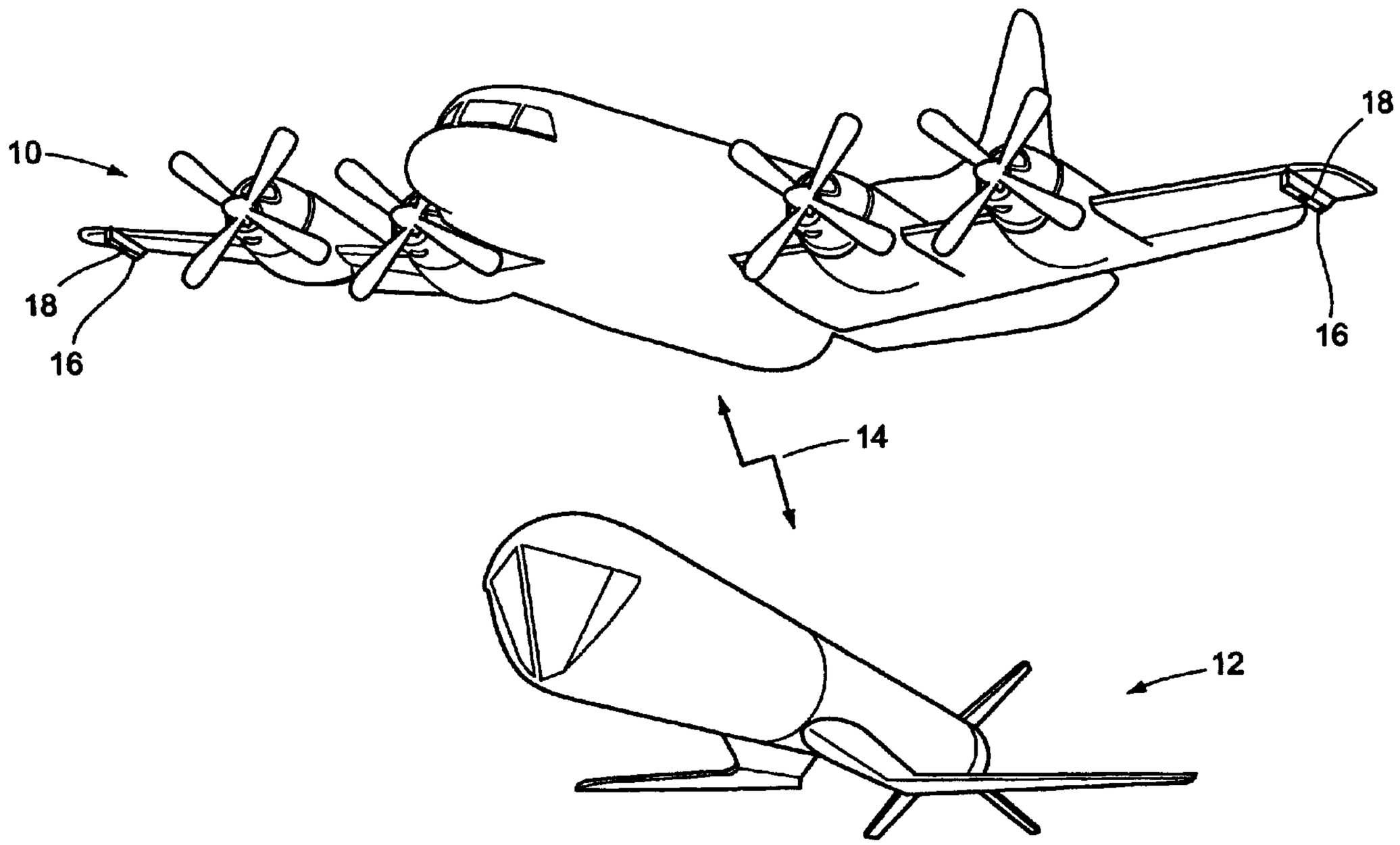


(57) Abrégé/Abstract:
A system for an aircraft that includes an attachment point for a store and a data management system that communicates data amongst a plurality of mobile platform systems and an operator. The data management system includes a docking station and a data link operatively associated with the attachment point thereby allowing the store and at least one of the mobile platform systems to communicate. The system includes a circuit that docks to the docking station and includes an input, a first data port, and a second data port. The circuit accepts operator commands via the input and sends commands to the data link, and to the store, based on the inputs via the second data port. Additionally, the circuit accepts imaging from the store via the second data port.

STANDOFF LAND ATTACK-EXPANDED RESPONSE DEVICE COMPUTER

Abstract of the Disclosure

A system for an aircraft that includes an attachment point for a store and a data management system that communicates data amongst a plurality of mobile platform systems and an operator. The data management system includes a docking station and a data link operatively associated with the attachment point thereby allowing the store and at least one of the mobile platform systems to communicate. The system includes a circuit that docks to the docking station and includes an input, a first data port, and a second data port. The circuit accepts operator commands via the input and sends commands to the data link, and to the store, based on the inputs via the second data port. Additionally, the circuit accepts imaging from the store via the second data port.

STANDOFF LAND ATTACK-EXPANDED RESPONSE DEVICE COMPUTER

Field of the Invention

This invention relates generally to an operator interface for a mobile platform and, more particularly, to a circuit and method for increasing the types of stores an aircraft may control without modifying the data management system of the aircraft.

Background of the Invention

Modern combat aircraft rely on their onboard data management system to communicate with, and control, smart weapons stored on attachment points of the aircraft. While a weapon is stored on the attachment point, a MIL-STD-1553 data bus typically provides connectivity between the weapon and the data management system. Once the weapon has been launched, a data link pod on the aircraft store pylon typically provides an RF link between the data management system and the airborne weapon. One such data link pod is the AN/AWW-13 pod developed by the Naval Avionics Center and described in publication number 1342AS114 dated Nov. 15, 1988.

Additionally, modern weapons such as the exemplary SLAM-ER (Standoff Land Attack Missile-Expanded Response) missile, available from the Boeing Co. of Chicago, IL, provide a channel of video imaging from a seeker located on the weapon. The imaging allows an aircrew member onboard the aircraft to see where the missile is headed. By issuing commands via the RF link, the aircrew member may then adjust the weapon's trajectory accordingly. Moreover, with the current state of world affairs, the imaging allows the aircrew member to identify high value targets

that suddenly appear and then to re-task the weapon accordingly. Clearly, such man-in-the-loop (MITL) capabilities provide a degree of flexibility that is highly sought after. The dual role F/A-18, also available from the Boeing Co. of Chicago, IL represents one exemplary platform that may be fully equipped to carry MITL weapons such as the SLAM-ER

Unfortunately, despite the capability of the data link incorporated in the AN/AWW-13 pod, many platforms would require extensive modification to incorporate MITL capabilities. For instance, not all P-3 maritime patrol aircraft, available from the Lockheed Martin Corporation of Bethesda, MD, are configured for MITL weapons. Instead, these P-3s typically use the AN/AWG-19 HACLCS to launch non-MITL weapons such as the Harpoon cruise missile (also available from the Boeing Company of Chicago, IL).

To upgrade such platforms to include MITL capability would require expensive, time-consuming modifications that would take the platform out of service during the modification. In addition, those skilled in the art will recognize that the modified platform will have to be recertified, thereby aggravating the cost and delay associated with the upgrade.

Moreover, many modern weapons (the SLAM-ER for example) allow new mission plans to be downloaded into them during flight, but before launch from the platform. Typically, the new missions are programmed into an electronic file using mission planning software. The resulting mission file is downloaded into the weapon prior to launch. An exemplary mission planning application is the Joint Mission Planning System (JMPS) developed by the China Lake Naval Weapons Station of China Lake, CA. As with MITL capability, the platform must be equipped to

accommodate the JMPS system. Otherwise, adding planning capability to the platform requires another expensive and time-consuming platform modification.

Summary of the Invention

It is in view of the above problems that the present invention was developed. The present invention includes apparatus and methods for extending the capabilities of mobile platforms, heretofore incapable of MITL weapons control, to provide MITL capability without requiring platform modification and its attendant disadvantages.

In particular, the present invention includes apparatus to operate a MITL capable weapon from a pre-existing aircraft not otherwise capable of controlling the missile. The apparatus may be a personal computer (e.g. a ruggedized lap-top computer) that accepts data and sends commands from several interfaces. First, the laptop accepts operator inputs entered via a joystick, via an external data entry panel, or via its keyboard and a graphical user interface. Subsequently, the PC transforms the inputs into commands for the attachment point subsystem, the data link pod, and the weapon.

The commands are then sent to the appropriate destinations over, for example, one or more MIL-S-1553 buses. In turn, the laptop accepts feedback from the attachment point subsystem, the data link pod, and the weapon over these 1553 bus(es). Additional communications between the laptop and the weapon may occur over discrete input and output channels. The laptop also accepts imaging data from the weapon via the data link pod despite the lack of proper aircraft outfitting for such capability. The imaging may then be displayed, recorded, and played back on the laptop. In addition, the imaging may be uploaded to the aircraft data management system via an aircraft docking station to which the laptop is docked.

Additionally, the apparatus may be configured to execute mission-planning software such as the JMPS (Joint Mission Planning System) application.

In accordance with one aspect of the invention, there is provided a system for a mobile platform. The system includes an attachment point for a store, a data management system for communicating data amongst a plurality of other mobile platform systems and an operator and including a docking station. T he platform includes a data link operatively associated with the attachment point to allow the store and at least one of the platform systems to communicate. The system also includes a circuit adapted to dock to the docking station. The docking station includes an input for accepting commands from the operator, a first data port for sending commands to at least one of the data link and the store based on the commands, and a second data port for accepting imaging from the store.

The system may further include a video digitizer associated with the circuit to communicate with the second data port and to digitize the imaging.

The system may further include a video digitizer adapted to be interposed between the data link and the second data port to digitize the imaging from the store and to forward the digitized imaging to the second data port.

The system may further include an IEEE-**1394** compatible cable adapted to connect the digitizer and the second data port.

The system may further include a memory for storing a mission-planning program to be executed by the circuit.

The system may further include a data entry device adapted to communicate with the circuit via the input.

The system may further include an RS-**232** compatible cable adapted to connect the data entry device and the input.

The system may further include a joystick associated with the device.

The circuit may be adapted to forward the imaging to the data management system display.

The circuit may be adapted to be carried onboard the mobile platform.

The system may further include at least one of a firmware containing the circuit and a personal computer containing the circuit.

The imaging may be one of at least infrared and visible electromagnetic radiation.

In accordance with another aspect of the invention, there is provided a computer for use on a mobile platform including an attachment point for a store, a data management system for communicating data amongst a plurality of mobile platform systems and an operator and including a docking station. The mobile platform includes a data link operatively associated with the attachment point to allow the store and at least one of the mobile platform systems to communicate. The computer includes a docking port to dock to the docking station, an input for accepting commands from the operator, a data port for sending commands to at least one of the data link and the store based on the inputs, and an image port for accepting imaging from the store.

The computer may further include a video digitizer to communicate with the image port and to digitize the imaging.

The computer may further include an external video digitizer adapted to be interposed between the data link and the image port to digitize the imaging from the store and to forward the digitized imaging to the image port.

The image port may be IEEE-**1394** compliant.

The computer may further include a memory for storing a mission-planning program to be executed by the computer.

The computer may further include an external data entry device adapted to communicate with the input.

The input may be an RS-232 port adapted to communicate with the data entry device.

The computer may further include a joystick associated with the device.

The computer may be adapted to forward the imaging to the data management system.

The computer may be adapted to be carried onboard the mobile platform.

The computer may be a laptop computer.

The imaging may be one of at least infrared and visible electromagnetic radiation.

In accordance with another aspect of the invention, there is provided a mobile platform. The mobile platform includes an attachment point for a store, and a data management system for communicating data between a plurality of mobile platform systems and an operator. The data management system includes a docking station, a data link operatively associated with the attachment point to allow the store and at least one of the mobile platform systems to communicate, and a circuit adapted to dock to the docking station. The circuit includes an input for accepting commands from the operator, a first data port for sending commands to at least one of the data link and the store based on the inputs, and a second data port for accepting imaging from the store.

The mobile platform may be an aircraft.

The aircraft may be a P-3.

The mobile platform may further include an AN/AWW-**13** pod including the data link.

The store may be a SLAM-ER weapon.

In accordance with another aspect of the invention, there is provided a method of preparing a mobile platform to accept a store. The mobile platform includes an attachment point for a store, a data management system for communicating data amongst a plurality of mobile platform systems and an operator, the data management system including a docking station, and a data link operatively associated with the attachment point to allow the store and at least one of the mobile platform systems to communicate. The method involves configuring a circuit to accept operator inputs, the circuit adapted to dock to the docking station, configuring the circuit to send commands to at least one of the data link and the store based on the inputs, and configuring the circuit to accept imaging from the store.

The method may further involve configuring the data management system to accept the imaging from the circuit.

The method may further involve configuring the data management system to display the imaging.

The method may further involve docking the circuit to the docking station.

The method may further involve configuring a video digitizer to digitize the imaging.

The method may further involve configuring the circuit to execute mission-planning program.

The method may further involve configuring the circuit to communicate with an external data entry device.

The method may further involve carrying the circuit onboard the mobile platform.

Further features and advantages of the present invention, as well as the structure and operation of various embodiments of the present invention, are described in detail below with reference to the accompanying drawings.

Brief Description of the Drawings

The accompanying drawings, which are incorporated in and form a part of the specification, illustrate the embodiments of the present invention and together with the description, serve to explain the principles of the invention. In the drawings:

Figure **1** is a perspective view of an aircraft in accordance with a preferred embodiment of the present invention.

Figure **2** is a block view of a system in accordance with a preferred embodiment of the present invention;

Figure **3** is a flowchart of a method in accordance with another preferred embodiment of the present invention; and

Figure **4** is a flowchart of another method in accordance with a further preferred embodiment of the present invention.

Detailed Description of the Preferred Embodiments

Referring to the accompanying drawings in which like reference numbers indicate like elements, Figure **1** illustrates an aircraft **10** having launched a MITL weapon **12**, and a bi-directional electromagnetic (e.g. RF) link **14** allowing communication between the two vehicles. In particular, the figure illustrates a store pylon **16** on the aircraft **10** for attaching the weapon **12** under a wing (or fuselage) of

the aircraft. Also shown schematically is the data link pod **18** through which the aircraft **10** communicates with the weapon **12** after launch.

An exemplary combination of data link pod **18** and weapon is the AN/AWW-**13** pod and the SLAM-ER missile. Note should be made that the data link pod **18** is compliant with MIL-STD-**1760**. Moreover, whereas a weapon **12** is described therein, the present invention is not so limited. For instance, a MIL-S-**1760** compatable store may be employed without deviating from the spirit or scope of the present invention. Similarly, any combination of mobile platform and store may be employed (e.g. a ship or submarine and a submersible vehicle or torpedo) may be retrofitted according to the principles of the present invention without deviating from the invention's spirit or scope.

With reference now to Figure **2**, an integrated system **20**, in accordance with the principles of another preferred embodiment of the present invention, is shown. Generally, the system **20** includes selected components from pre-existing aircraft systems **22** and additional components **24** that supply further capability to the aircraft **10**. The various individual components of the system **20** will be briefly discussed first, herein, before turning to a discussion of the integrated operation of the system **20**.

The pre-existing components **22** include the following: the aircraft data management system **26** including a docking port **28**, the data link pod **30**, the store adaptor subassembly **32**, and other aircraft weapons related systems **34** (e.g. INU-

Inertial Navigation Unit, RADAR, and GPS systems). These pre-existing components **22** communicate with one another via various interconnect technologies. For instance, the docking station provides Ethernet connectivity **36**. Several MIL-S-**1553** buses **38** link portions **30**A of the data link pod **30**, portions **32**A of the store adaptor, and the other systems **34**. Another portion **32B** of the store adaptor **32** communicates via hardwired links **42**.

With continuing reference to Figure **2**, the additional components **24** includes a circuit **44** that may be, or include, a ruggedized personal computer (PC) or firmware. In a prefered embodiment the circuit **44** is an industrial laptop computer, Model Number FXPAC**6** P**42**G, available from Dolch Computer Systems of Fremont, CA and may be docked at the docking station **28** via an Ethernet port **45**. Additionally, the computer **44** may include several PCI adaptors as follows. A first PCI adaptor **46** may be included for translating the bidirectional communications betweeen the computer **44** and the various MIL-S-**1553** buses **38**. Portion **30B** of the data link **30** accepts imaging data from the weapon **12**. The data link **30B** also communicates this imaging over a hardwired cable **40** to a video digitizer **51**. In turn, the digitizer **51** digitizes the imaging and transmits it to a PCI adaptor **48**, preferentially in an IEEE-**1394** compliant format.

A third PCI adaptor **52**, enables the computer **44** to read and generate the discrete signals carried by the wires **42**. Finally, a PMCIA adaptor card **54** may allow the addition of a memory **56**, to be addressed later herein, to the computer **44**.

Another PCI adaptor **64** may provide RS-**232** connectivity **66** to an external data entry panel **58**, a joystick **60**, and a security device **62**. The data entry panel **58** and joystick **60** allow the aircrew member to enter commands for the weapon **12** to the computer **44**. In parallel the security device **62** prevents unauthorized personnel

from accessing the system **20** in a manner well known in the art. While the devices **58** to **62** have been described as being peripheral components, the computer may include these components via internal hardware, software, or graphical user interfaces. Thus, the various pre-exisitng components **22** of the aircraft **10** and the additional components **24** have been briefly described.

Still referring to Figure **2**, the integrated system **20** operates as follows. Aircrew members onboard the aircraft **10** enter commands and other inputs associated with the store **12** (see Figure **1**) by way of the data entry panel **58** and joystick **60** (e.g. guiding the weapon with the joystick). In turn, the computer **44** receives the inputs via the PCI adaptor **64**. Subsequently, the computer **44** translates the inputs to appropriate MIL-S-**1553** messages and discretes and transmits the resulting outputs via the appropriate PCI card (either **46** or **52**). In this manner, the operator may command the data link pod **30**, the store adaptor, and the other systems **34** independently of the data management system **26** of the aircraft **10**. In similar manner, the operator may view status information returned from these subsystems **30** to **34** via the MIL-S-**1553** buses **38** and the discrete inputs **42** independently of the aircraft **10**. Of course, the MITL capable weapon **12** communicates over the weapon's MIL-S-**1553** data bus via the store adaptor **32**A before launch.

Notably, the data link pod **30**B may be receiving imaging from the weapon **12** after launch. Those skilled in the art will understand that the imaging is typically of the infrared or visible portion of the electro magnetic spectrum, though the current invention is not so limited. If imaging is being received, the video digitizer **51** reformats the imaging to an IEEE-**1394** format and transmits the reformated imaging to the PCI adaptor **48** via the cable **50**. The computer **44** then displays the imaging on either an internal display (e.g. the computer's monitor) or a monitor associated with

the data entry panel **58**. In addition, the computer **44** may store the imaging internally or forward it to the data management system **26** via the docking station **28**.

Accordingly, the aircrew member has the information and controls available at the computer **44** to operate the weapon and associated aircraft systems independently of the aircraft data management system **26**. In particular, during the terminal phase of the weapon's flight the aircrew member may re-task the weapon to a secondary target visible in the imaging if the primary target has dissappeared or been destroyed. Moreover, considering the fluid nature of modern combat, wherein targets appear and dissapear quickly, the weapon may be re-tasked upon the sudden observance of a high value target in the imaging.

As those skilled in the art will recognize, a program or software application resides within the computer **44** to receive the crewmember commands, translate them into suitable outbound commands for the data link **30**, store adaptor **32**, and the other systems **34**. The software also includes the capability to translate incoming data from the data link **30**, store adaptor **32**, the other systems **34**, and in particular the video digitizer **51** into a format suitable for display on the data entry panel **58**.

Those skilled in the art will recognize that the computer **44**, of the present embodiment, resides in parallel with the pre-existng weapons systems. Thus, the aircraft **10** may operate non MITL weapons on the data link pod **30** when the computer **44** is idle or absent. Moreover, the aircraft **10** may be configured with multiple stores adaptors **16** each individually tailored to operate either MITL capable weapons **12**, or not, as desired by the aircraft owner. Likewise, the computer **44** may be used to operate non-MITL weapons.

In yet another embodiment, the present invention also provides the capability to allow mission planning onboard the aircraft **10** whether the aircraft is configured to

allow the planning capability or not. By storing a mission planning program, or application such as JMPS, in the computer **44**, the operator may plan a mission for the weapon **12** on the computer **44**. In particular, the operator may run the mission planning software, accessing relevant data from the various onboard systems (e.g. the INU, RADAR, and GPS) as necessary to create and download a program into the weapon **12** via the weapons data bus **38** and the store adaptor **32**A. Thus, the present invention also provides the benefit of mission planning for weapons even if the aircraft is not so equipped.

In another preferred embodiment of the present invention, a method of adding MITL capability to non MITL capable platforms is also provided. In general, the exemplary method **100** illustrated in Figure **3** includes configuring the computer **44** and, if desired, configuring the aircraft **10**. It will be understood hereing that the term "configure" includes connecting cabling and other hardware. Moreover, for embodiments including firmware and other custom circuits in lieu of the computer **44**, "configure" will be construed to mean programming logic devies (e.g. EEPROM) and otherwise physically configuring the circuit (e.g. adjusting gains or filter settings). Additionally, it will be further understood that the exact ordering of the steps shown need not be followed to adhere to the spirit and scope of the present invention.

With reference now to operation **102** of Figure **3**, configuring the computer includes installing software to allow the computer to accept and translate weapon control inputs from the data entry panel. Configuring the computer also includes installing software to send the commands to the data link, store adaptor, and other aircraft systems (see operation **104**). If peripheral devices (e.g. a data entry panel or joystick) are to be used in lieu of internal devices, then software may also be required

to control these external components. See step **106**. Of course, all of the software entities may be included in one integrated application.

Additionally, configuring the computer may include installing software to accept the video imaging (and if necessary digitize it). See step **108**. The video functions may also be included in the single, integrated application program. Depending on the digitizer chosen, it too may require configuration, particularly in terms of initializing software or the addition of video capture cards. In the alternative, if the computer is to include an internal digitizer, than additional computer configuration may be required as in step **110**. Additionally, if mission planning capability is desired, the mission planning software should be installed as in operation **112**. Preferentially, the computer is configured prior to carrying it onboard the aircraft in opertion **114**. Likewise, the computer may be docked to the work station, in operation **116**, at any time.

In the meantime, some minimal configuration of the aircraft may be desirable. If it is desired for the data management system to either accept, store, or display, the video imaging from the computer **44** (see Figure **2**) then accomodations (e.g. allocation of memory or selection of a display) may be made. See steps **120** and **122**. Though, because the present invention provides all of these capabilities within the computer **44**, such aircraft configurations are not necessary for practicing the present embodiment of the invention. Once the configuration of the computer and aircraft (if necessary) are complete, and the computer is docked to the work station, MITL weapons may be operated from the aircraft, as in step **124**.

Thus, as further illustrated by Figure **4**, the aircrew member may operate a MITL weapon **12** with the computer **44** as follows. First, the aircrew member docks the computer to the aircraft docking station and boots the machine as in operation

202. The crewmember may then open the mission planning software and plan a mission. See operation **204**.

In parallel, the operator may have opened the software containing the weapon pre-launch, launch, and post launch routines as shown at operation **208**. Once the misssion (or revised mission is ready), the crewmember then downloads the mission to the memory onboard the weapon via a MIL-S-**1553** bus that communicates with the weapon in operation **210**. As the time for launching the weapon approaches, the aircrew member initializes the data link pod as in operation **212**. In operation **214**, at a time desirable from a mission execution perspective, the crewmember prepares the weapon for flight by initializing it with the aircraft's current attitude and GPS coordinates (as acquired from the systems onboard the aircraft or elsewhere). Then, at the planned time, the crewmember performs operation **216** to launch the weapon. The crewmember then commands the data link pod to "Post Launch" mode to turn the data link on. See step **218**.

With the weapon away, the aircrew member controls the flight of the weapon as desired according to the data and imaging received from the weapon. In particular, because the present invention provides the crewmember real time video feedback from the weapon, the operator may accurately control the weapon through the terminal phase of the mission. See operation **220**.

With continuing reference to Figure **4**, the crewmember may then decide whether to launch another weapon. If so, the crewmember returns from operation **224** to operation **214**. Of course, the crewmember may also plan a mission for the next weapon before launching it. If no other weapon launches are desired, operation **226** shows the system (i.e. the computer and data link) being deactivated.

In view of the foregoing, it will be seen that the several advantages of the invention are achieved and attained. In particular, a mobile platform (that heretofore did not possess MITL capability) has been enhanced with MITL capability. Notably, the embodiments described herein, provided the enhancement without requiring extensive modification and recertication of the platform. Accordingly, the present invention provides a less expensive and quicker system and method to upgrade the capabilities of non-MITL weapons platforms.

The embodiments were chosen and described in order to best explain the principles of the invention and its practical application to thereby enable others skilled in the art to best utilize the invention in various embodiments and with various modifications as are suited to the particular use contemplated.

As various modifications could be made in the constructions and methods herein described and illustrated without departing from the scope of the invention, it is intended that all matter contained in the foregoing description or shown in the accompanying drawings shall be interpreted as illustrative rather than limiting. Thus, the breadth and scope of the present invention should not be limited by any of the above-described exemplary embodiments, but should be defined only in accordance with the following claims appended hereto and their equivalents.

THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:

1. A system for a mobile platform including an attachment point for a store, a data management system for communicating data amongst a plurality of other mobile platform systems and an operator and including a docking station, the platform including a data link operatively associated with the attachment point to allow the store and at least one of the platform systems to communicate, the system comprising:

a circuit adapted to dock to the docking station and including:

an input for accepting commands from the operator,

a first data port for sending commands to at least one of the data link and the store based on the commands; and

a second data port for accepting imaging from the store.

2. The system according to Claim **1**, further comprising a video digitizer associated with the circuit to communicate with the second data port and to digitize the imaging.

3. The system according to Claim **1**, further comprising a video digitizer adapted to be interposed between the data link and the second data port to digitize the imaging from the store and to forward the digitized imaging to the second data port.

4. The system according to Claim **3**, further comprising an IEEE-**1394** compatible cable adapted to connect the digitizer and the second data port.

5. The system according to Claim **1**, further comprising a memory for storing a mission-planning program to be executed by the circuit.

6. The system according to Claim **1**, further comprising a data entry device adapted to communicate with the circuit via the input.

7. The system according to Claim **6**, further comprising an RS-**232** compatible cable adapted to connect the data entry device and the input.

8. The system according to Claim **6**, further comprising a joystick associated with the device.

9. The system according to Claim **1**, wherein the circuit is adapted to forward the imaging to the data management system display.

10. The system according to Claim **1**, wherein the circuit is adapted to be carried onboard the mobile platform.

11. The system according to Claim **1**, further comprising at least one of a firmware containing the circuit and a personal computer containing the circuit.

12. The system according to Claim **1**, wherein the imaging is one of at least infrared and visible electromagnetic radiation.

13. A computer for use on a mobile platform including an attachment point for a store, a data management system for communicating data amongst a plurality of mobile platform systems and an operator and including a docking station, the mobile platform including a data link operatively associated with the attachment point to allow the store and at least one of the mobile platform systems to communicate, the computer comprising:

a docking port to dock to the docking station;

an input for accepting commands from the operator;

a data port for sending commands to at least one of the data link and the store based on the inputs; and

an image port for accepting imaging from the store.

14. The computer according to Claim **13**, further comprising a video digitizer to communicate with the image port and to digitize the imaging.

15. The computer according to Claim **13**, further comprising an external video digitizer adapted to be interposed between the data link and the image port to

digitize the imaging from the store and to forward the digitized imaging to the image port.

16. The computer according to Claim **15**, wherein the image port is IEEE-**1394** compliant.

17. The computer according to Claim **13**, further comprising a memory for storing a mission-planning program to be executed by the computer.

18. The computer according to Claim **13**, further comprising an external data entry device adapted to communicate with the input.

19. The computer according to Claim **18**, wherein the input is an RS-**232** port adapted to communicate with the data entry device.

20. The computer according to Claim **18**, further comprising a joystick associated with the device.

21. The computer according to Claim **13**, wherein the computer is adapted to forward the imaging to the data management system.

22. The computer according to Claim **13**, wherein the computer is adapted to be carried onboard the mobile platform.

23. The computer according to Claim **13**, wherein the computer is a laptop computer.

24. The computer according to Claim **13**, wherein the imaging is one of at least infrared and visible electromagnetic radiation.

25. A mobile platform comprising:

an attachment point for a store;

a data management system for communicating data between a plurality of mobile platform systems and an operator, the data management system including a docking station;

a data link operatively associated with the attachment point to allow the store and at least one of the mobile platform systems to communicate, and

a circuit adapted to dock to the docking station and including:

an input for accepting commands from the operator,

a first data port for sending commands to at least one of the data link and the store based on the inputs; and

a second data port for accepting imaging from the store.

26. The mobile platform according to Claim **25** wherein the mobile platform is an aircraft.

27. The mobile platform according to Claim **26**, wherein the aircraft is a P-**3**.

28. The mobile platform according to Claim **25**, further comprising an AN/AWW-**13** pod including the data link.

29. The mobile platform according to Claim **22**, wherein the store is a SLAM-ER weapon.

30. A method of preparing a mobile platform to accept a store, the mobile platform including an attachment point for a store, a data management system for communicating data amongst a plurality of mobile platform systems and an operator, the data management system including a docking station, and a data link operatively associated with the attachment point to allow the store and at least one of the mobile platform systems to communicate, the method comprising:

configuring a circuit to accept operator inputs, the circuit adapted to dock to the docking station;

configuring the circuit to send commands to at least one of the data link and the store based on the inputs; and

configuring the circuit to accept imaging from the store.

31. The method according to Claim **30**, further comprising configuring the data management system to accept the imaging from the circuit.

32. The method according to Claim **31**, further comprising configuring the data management system to display the imaging.

33. The method according to Claim **30**, further comprising docking the circuit to the docking station.

34. The method according to Claim **30**, further comprising configuring a video digitizer to digitize the imaging.

35. The method according to Claim **30**, further comprising configuring the circuit to execute mission-planning program.

36. The method according to Claim **30**, further comprising configuring the circuit to communicate with an external data entry device.

37. The method according to Claim **30**, further comprising carrying the circuit onboard the mobile platform.

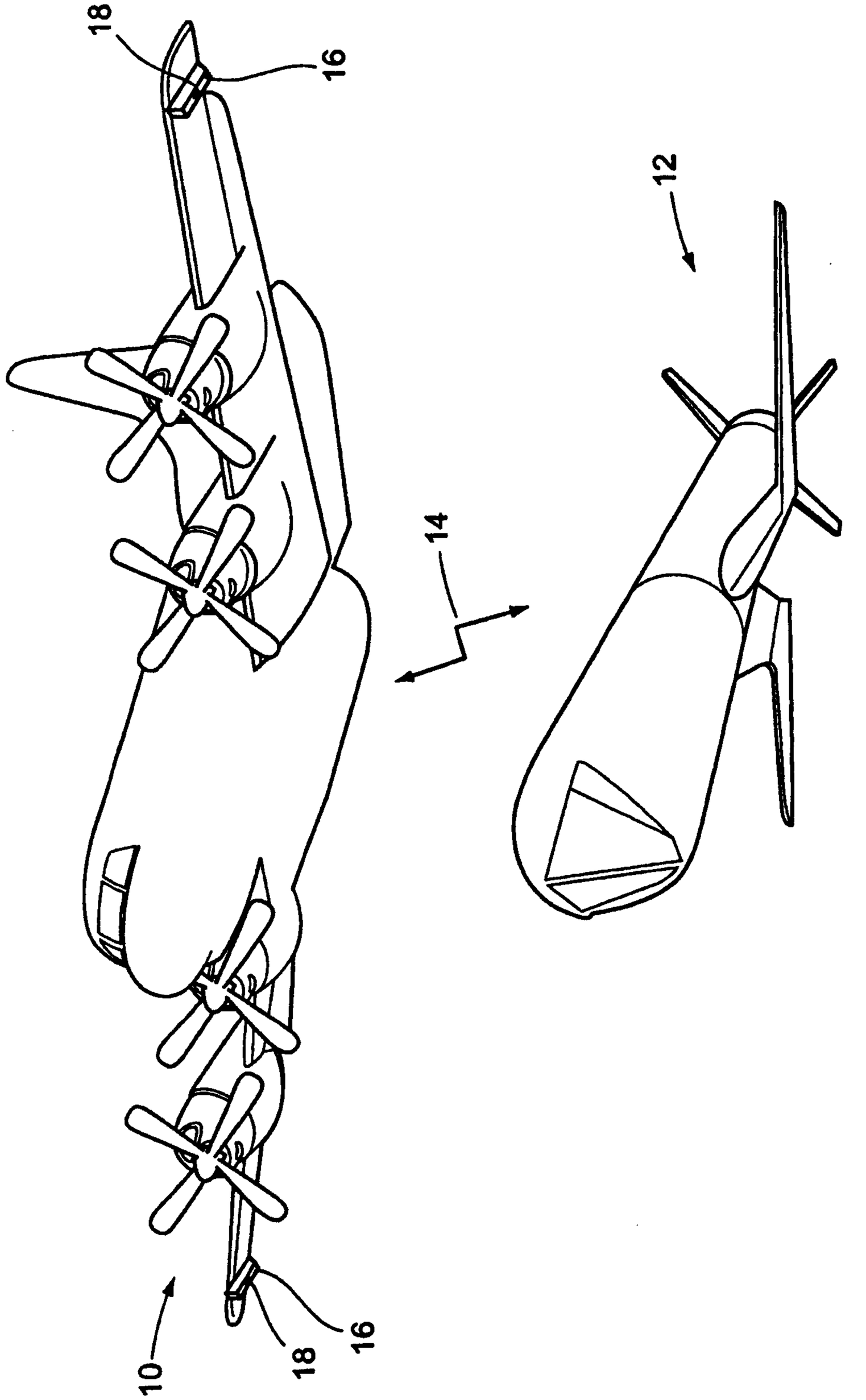
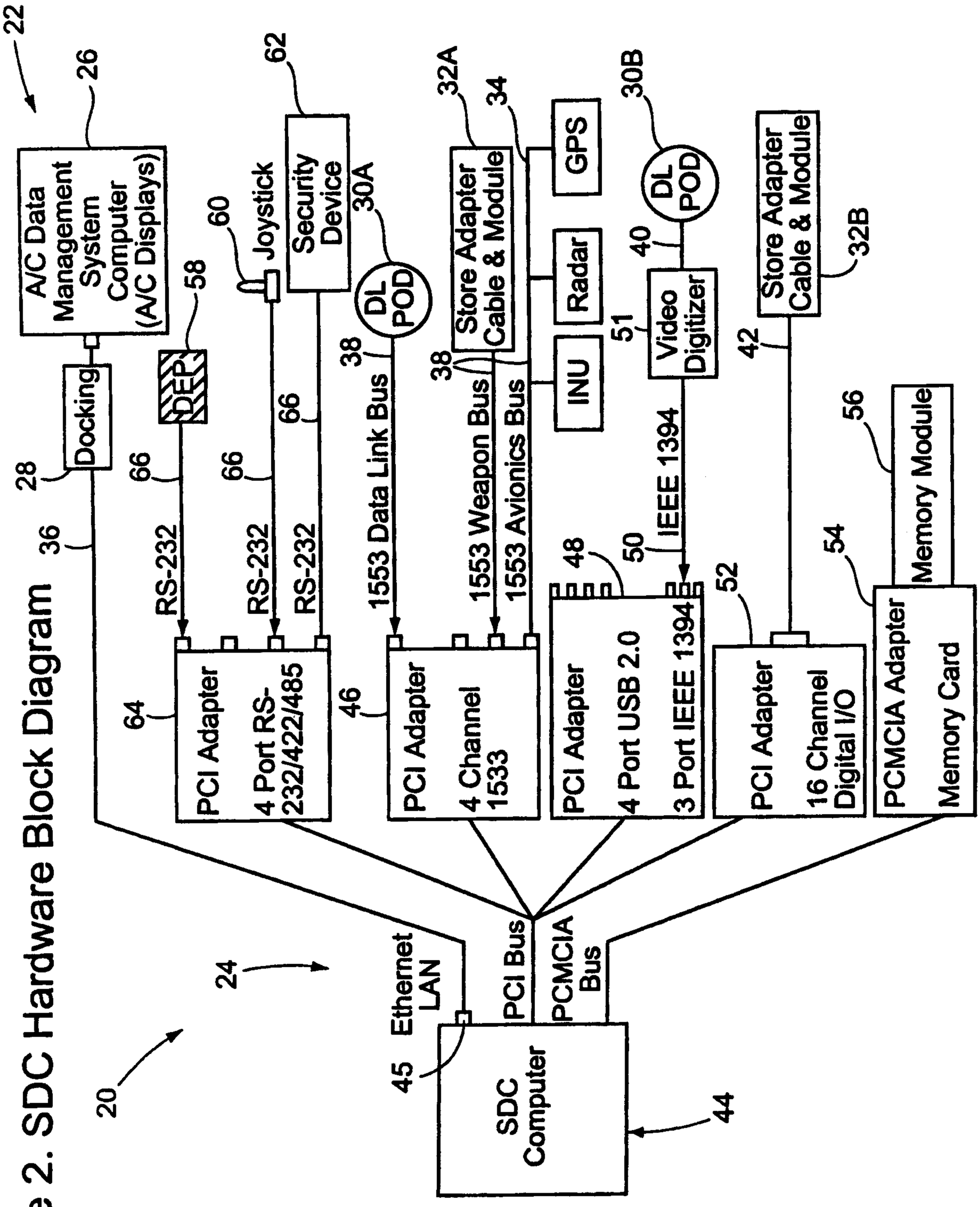


Figure 1


A/C Data Management System Computer (A/C Displays)
26
Docking
28
DEP
58
60
Joystick
Security Device
30A
DL POD
38
62
66
RS-232
RS-232
RS-232
1553 Data Link Bus
1553 Weapon Bus
1553 Avionics Bus
32A
Store Adapter Cable & Module
34
GPS
Radar
INU
30B
DL POD
40
Video Digitizer
51
IEEE 1394
48
50
52
42
Store Adapter Cable & Module
32B
54
56
Memory Module
64
PCI Adapter
4 Port RS-232/422/485
46
PCI Adapter
4 Channel 1533
PCI Adapter
4 Port USB 2.0
3 Port IEEE 1394
PCI Adapter
16 Channel Digital I/O
PCMCIA Adapter
Memory Card
Ethernet LAN
45
PCI Bus
PCMCIA Bus
SDC Computer
44
20
24
36
Figure 2. SDC Hardware Block Diagram

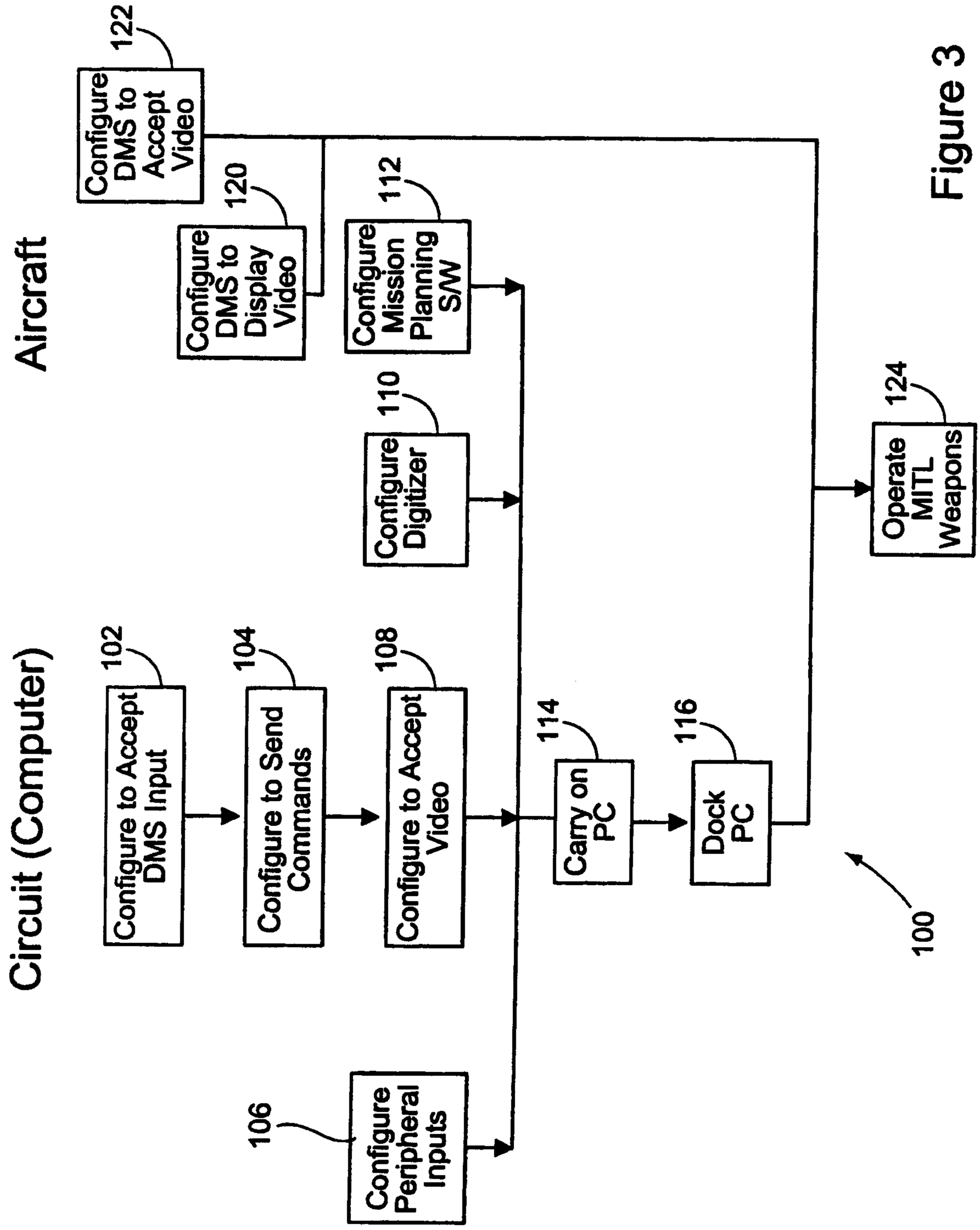

Aircraft
Circuit (Computer)
Configure to Accept DMS Input
102
Configure to Send Commands
104
Configure Peripheral Inputs
106
Configure to Accept Video
108
Configure Digitizer
110
Configure Mission Planning S/W
112
Configure DMS to Display Video
120
Configure DMS to Accept Video
122
Carry on PC
114
Dock PC
116
Operate MITL Weapons
124
100

Figure 3

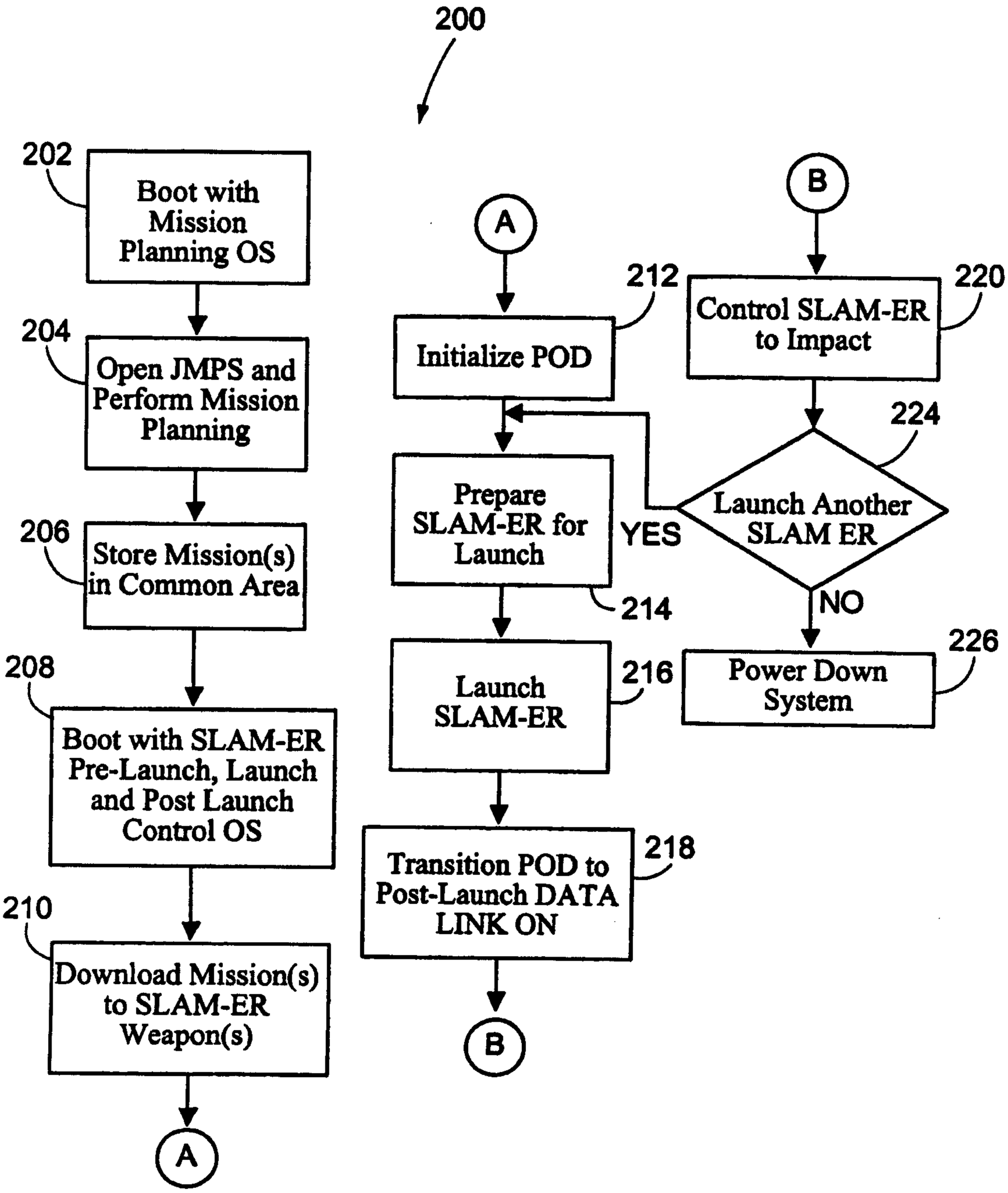
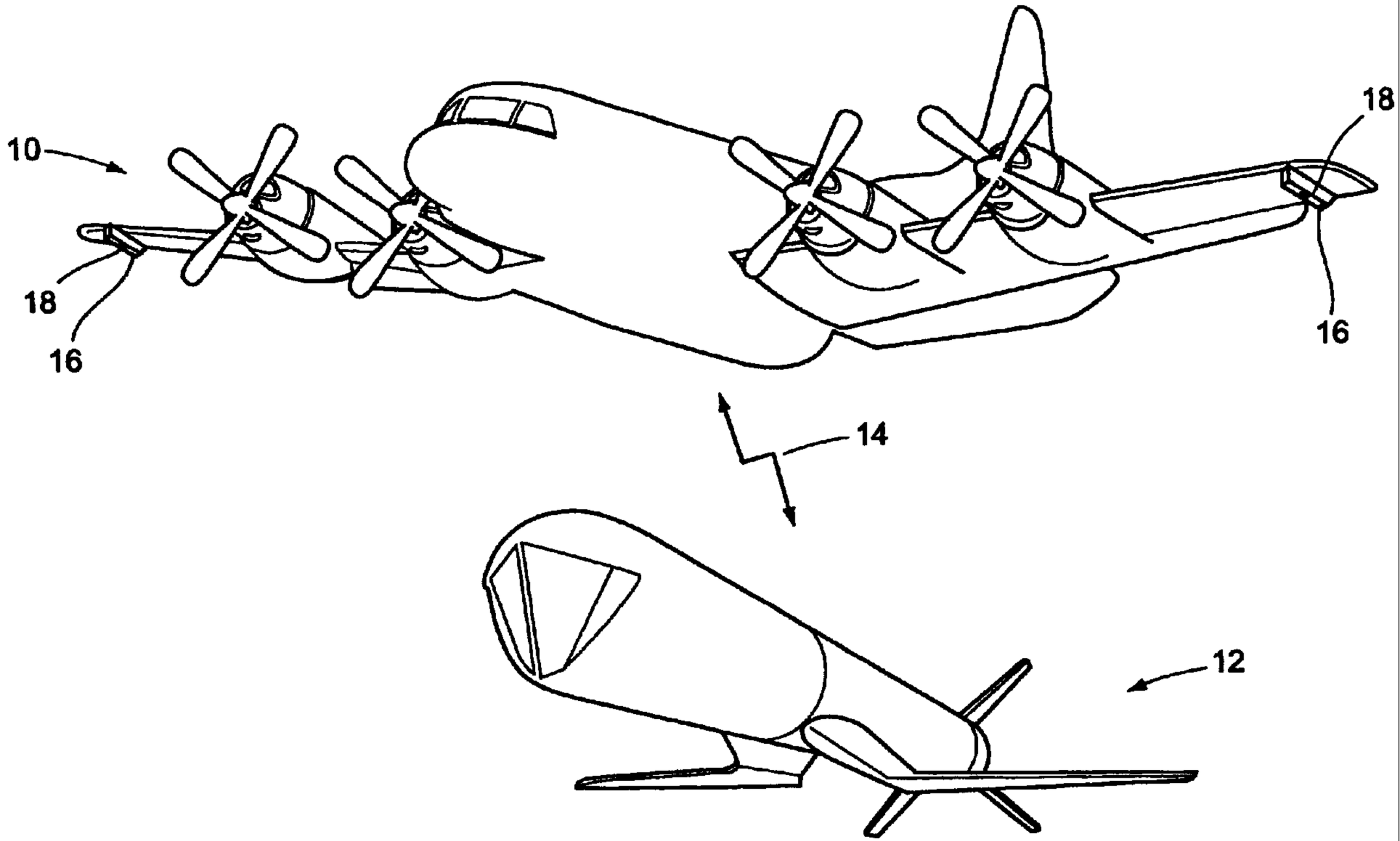


Figure 4. Top Level SDC Flowchart


10
18
16
18
16
14
12