BRIEF SUMMARY

[0004] A blow-out preventer (BOP) may be improved by having a subsea processing unit located underwater with the blow-out preventer. The processing unit may enable the blow-out preventer to function as a blow-out arrestor (BOA), because the processing unit may determine problem conditions exist that warrant taking action within the blow-out preventer to prevent and/or arrest a possible blow-out condition.

[0005] According to ~~one embodiment~~ a first aspect, an apparatus may include an underwater drilling component, in which the underwater drilling component may include a physical receptor configured to receive a first processor unit, an inductive power device configured to transfer power to the first processor unit through the physical receptor, and a wireless communications system configured to communicate with the first processor unit through the physical receptor.

[0006] According to ~~another embodiment~~ a second aspect, an apparatus may include a processor; an inductive power device coupled to the processor and configured to receive power for the processor; and a wireless communications system coupled to the processor and configured to communicate with an underwater drilling component.

[0007] According to ~~yet another embodiment~~ a third aspect, a method of controlling an underwater drilling component may include receiving power, at a subsea processor, through an inductive coupling with the underwater drilling component, and communicating wirelessly, from the subsea processor, with the underwater drilling component to control the underwater drilling component.

[0008] ~~According to a further embodiment,~~ There is also disclosed an apparatus may include at least one subsea component of an underwater drilling tool; and at least one subsea processor configured to wirelessly communicate with the subsea component, in which the at least one subsea component and the at least one subsea processor are configured to communicate according to a time division multiple access (TDMA) scheme.

[0009] ~~According to another embodiment,~~There is also disclosed a system may include at least one subsea component of an underwater drilling tool; at least two subsea processors configured to communicate with the at least one subsea component; and a shared communications bus between the at least one subsea component and the at least two subsea processors comprising a subsea network, in which the at least two subsea processors are configured to communicate on the shared communications bus according to a time division multiple access (TDMA) scheme.

[0010] ~~According to yet another embodiment,~~There is also disclosed a method may include receiving data, at a subsea processor, from a subsea component of an underwater drilling tool; processing the received data, at the subsea processor, to determine a command to control the subsea component; and transmitting the command, from the subsea processor, to the subsea component through a shared communications bus according to a time division multiple access (TDMA) scheme in a subsea network.

[0011] The foregoing has outlined rather broadly the features and technical advantages of the present invention in order that the detailed description of the invention that follows may be better understood. Additional features and advantages of the invention will be described hereinafter that form the subject of the claims of the invention. It should be appreciated by those skilled in the art that the conception and specific embodiment disclosed may be readily utilized as a basis for modifying or designing other structures for carrying out the same purposes of the present invention. It should also be realized by those skilled in the art that such equivalent constructions do not depart from the spirit and scope of the invention as set forth in the appended claims. The novel features that are believed to be characteristic of the invention, both as to its organization and method of operation, together with further objects and advantages will be better understood from the following description when considered in connection with the accompanying figures. It is to be expressly understood, however, that each of the figures is provided for the purpose of illustration and description only and is not intended as a definition of the limits of the present invention.