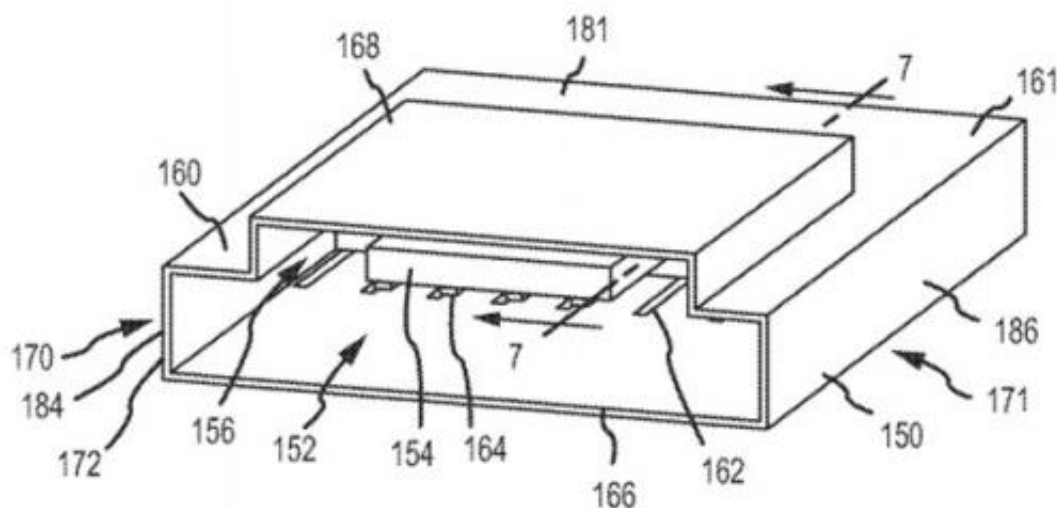


# Apple proposes combined-input port for space-deprived devices

June 28 2013, by Nancy Owano



(Phys.org) —People who use their computers on the go know the limitations: A superslim lightweight laptop is convenient for all those work-in-transit times in cafes, airports, train stations, and conference halls but there is not much port space. Now a newly published patent application from Apple proposes a solution: the two in one port. In the patent published this month, from Changsoo Jang of Apple, a "Combined Input Port" is discussed, where two different interfaces could be in one port.

The patent was filed in December 2011 but published just this week. The idea is for an input port for an electronic device for receiving different types of connectors, memory cards, or plugs. The patent filing describes the problem in limited port space: Input ports receive some type of connector—Universal Serial Bus (USB), mini-USB, high definition multi-media interface (HDMI), and audio connector. Each connector type may need a separate input port, because the connectors have different plug dimensions or pin arrangements. To accommodate the different connectors, many electronic devices may include multiple different input ports spaced around an enclosure of the device. Additionally, there may be input ports for [memory cards](#).

Apple proposes a way for the laptop to get around the limitation by allowing the bundling of two ports into one. Apple's workaround to the limited space is a layered port which can accept two different connectors, through its staggered electrical contacts and shape.

"The input port includes an outer wall defining a receiving aperture, a substrate positioned within the receiving aperture. A first set of contacts is positioned on the substrate at a first depth into the receiving aperture and a second set of contacts is positioned on a first surface of the outer wall at a second depth into the receiving aperture. The first set of contacts is configured to communicate with a first connector and the second set of contacts is configured to communicate with a second connector."

Apple illustrated the idea with discussion of a USB port and SD card reader, showing how the card reader and USB port could be integrated, but the port could house other interconnects.

"The foregoing description has broad application. For example, while examples disclosed herein may focus on an input port for receiving a USB plug and a SD card, it should be appreciated that the concepts

disclosed herein may equally apply to connectors and plugs. Similarly, although the input port may be discussed with respect to a computer, the devices and techniques disclosed herein are equally applicable to any type of device including an external connector for transferring data and/or power."

**More information:** [USPTO combined input port patent application](#)

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