CLAIMS

1. A communication device serving as an intermediate device for converting and transmitting data between two devices, comprising:

a USB Type-C (USB-C) port operating in a DisplayPort mode through a first pair of differential data channels therein to receive raw media data captured by a driver natively provided in an operating system of a user computing device coupled to the communication device through the USB-C port, wherein the raw media data is unformatted, and the raw media data comprises at least one of a video data or an audio data;

an actuator;

a signal converter circuit to convert the unformatted raw media data into a formatted media data responsive to receiving an activation of the actuator;

a hardware processor, communicatively coupled to the signal converter and the USB-C port, to compress, according to an encoding scheme, the formatted media data into a compressed media data stream; and

a wireless transmission interface to transmit, using a wireless network, the compressed media data stream to a large-format display device for presentation of the media data.

2. The communication device of claim 1, wherein the communication device is a dongle for connecting the user computing device to the large-format display device, and wherein the user computing device is one of a personal computer, a tablet computer, or a smart phone, and wherein the large-format display device is a large-format touch screen.

3. The communication device of claim 1:

wherein the actuator is to receive a user activation to start converting the media data into the formatted media data, and

wherein prior to the user activation, the communication device is to discard the media data.

4. The communication device of claim 1, further comprising a USB-C cable for coupling to a USB-C port of the user computing device.

5. The communication device of claim 4, wherein responsive to detecting that the communication device is coupled to the user computing device, the hardware processor is to transmit, using a configuration channel of the USB-C port, a request to the user computing device to configure the first pair of differential data channels to operate in a DisplayPort mode.

6. The communication device of claim 5, wherein responsive to configuring the first pair of differential data channels to operate in the DisplayPort mode, the user computing device is to transmit the media data stored in a storage of the user computing device to the communication device.

7. The communication device of claim 1, wherein the formatted media data comprises at least one of a Mobil Industry Processor Interface (MIPI) video data or an Inter-IC Sound (I^2S) signal, and wherein the compressed media data stream comprises at least one of a H.265/H.264 video stream or an MP3 audio stream.

8. The communication device of claim 1, wherein the large-format display device comprises:

a feedback device to capture parameter data associated with user interactions with a touch screen of the large-format display device; and

a second wireless transmission interface to transmit the captured parameter data to the communication device.

9. The communication device of claim 8, wherein responsive to receiving the parameter data, the hardware processor is to provide the parameter data to transmit, using a second pair of differential channels of the USB-C port, the parameter data to the user computing device, and wherein the user computing device is to simulate the user interaction.

10. The communication device of claim 8, wherein the feedback device comprises at least one of a touch sensor to capture a coordinate of a user gesture, a computer mouse, or a keyboard.

11. The communication device of claim 1, further comprising:

a storage device to store an executable program to be uploaded to the user computing device and executed by a processor of the user processing device; and

a power management unit to convert a first power supply at a first voltage received from the USB-C port to one or more second power supplies at second voltages to the hardware processor.

12. A method for operating a communication device that serves as an intermediate device for converting and transmitting data between two devices, the method comprising:

responsive to identifying a connection to a user computing device via a USB Type-C (USEC) port, transmitting, by a hardware processor using a configuration channel of the USB-C port, a request to the user computing device, the request instructing the user computing device to configure a first pair of differential data channels of the USB-C port to operate in a DisplayPort mode;

responsive to determining that an actuator is in an enabled state, receiving, through the first pair of differential data channels, DisplayPort data packets carrying raw media data captured by a driver natively provided in an operating system of the user computing device, wherein the raw media data comprises at least one of a video data or an audio data;

converting the unformatted raw media data into a formatted media data;

encoding, according to an encoding scheme, the formatted media data into a compressed media data stream;

transmitting, using a wireless network, the compressed media data stream to a large-format display device for presentation of the media data; and

responsive to receiving touch data representing user interactions with the large-format touch screen, transmitting the touch data to the user computing device using a second pair of differential data channel of the USB-C port.

13. The method of claim 12, wherein the user computing device is one of a personal computer, a tablet computer, or a smart phone.

14. The method of claim 12, further comprising:

responsive to determining that the actuator is in a disabled state, discarding the DisplayPort data packets.

15. The method of claim 12, wherein responsive to configuring the first pair of differential data channels to operate in the DisplayPort mode, the user computing device is to transmit the media data stored in a storage of the user computing device to the first pair of differential data channels of the USB-C port.

16. The method of claim 12, wherein the formatted media data comprises at least one of a Mobil Industry Processor Interface (MIPI) video data or an Inter-IC Sound (I^2S) signal, and wherein the compressed media data stream comprises at least one of a H.265/H.264 video stream or an MP3 audio stream.

17. The method of claim 12, wherein the large-format touch screen is to capture the touch data associated with user interactions with a screen of the large-format touch screen, wherein the touch data comprise a coordinate of a user gesture pointing at the screen.

18. The method of claim 12, wherein responsive to receiving the touch data through the second pair of differential data channel of the USB-C port, a second hardware processor of the user computing device is to simulate , on the user computing device, the user interactions with the large-format touch screen.

19. A non-transitory machine-readable storage medium storing instructions which, when executed, cause a hardware processor to operate a communication device that serves as an intermediate device for converting and transmitting data between two devices, the hardware processor to:

responsive to identifying a connection to a user computing device via a USB Type-C (USEC)port, transmit, a request using a configuration channel of the USB-C port to the user computing device, the request instructing the user computing device to configure a first pair of differential data channels of the USB-C port to operate in a DisplayPort mode;

responsive to determining that an actuator is in an enabled state, receive, through the first pair of differential data channels, DisplayPort data packets carrying raw media data captured by a driver natively provided in an operating system of the user computing device, wherein the media data comprises at least one of a video data or an audio data;

convert the unformatted raw media data into a formatted media data;

encode, according to an encoding scheme, the formatted media data into a compressed media data stream;

transmit, using a wireless network, the compressed media data stream to a large-format display device for presentation of the media data; and

responsive to receiving touch data representing user interactions with the large-format touch screen, transmit the touch data to the user computing device using a second pair of differential data channel of the USB-C port.

20. The non-transitory machine-readable storage medium of claim 19, wherein responsive to determining that the actuator is in a disabled state, the hardware processor is further to discard the DisplayPort data packets.

21. A system comprising:

a large-format display device; and

a peripheral device connected to the large-format display device through a wireless network, the peripheral device comprising:

a USB Type-C (USB-C) port operating in a DisplayPort mode through a first pair of differential data channels therein to receive raw media data captured by a driver natively provided in an operating system of a user computing device, wherein the raw media data is unformatted, and the raw media data comprises at least one of a video data or an audio data;

an actuator;

a signal converter circuit to convert the unformatted raw media data into a formatted media data responsive to receiving an activation of the actuator;

a hardware processor, communicatively coupled to the signal converter and the USB-C port, the hardware processor to compress, according to an encoding scheme, the formatted media data into a compressed media data stream; and

a wireless transmission interface to transmit, using a wireless network, the compressed media data stream to a large-format display device for presentation of the media data.

22. The system of claim 21, wherein the peripheral device is a dongle made for connecting the user computing device to the large-format display device, and wherein the user computing device is one of a personal computer, a tablet computer, or a smart phone, and wherein the large-format display device is a large-format touch screen.

23. The system of claim 21, wherein prior to the user activation, the peripheral device is to discard the media data.

24. The system of claim 21, wherein the peripheral device further comprises a USB-C cable for coupling to a USB-C port of the user computing device.

25. The system of claim 24, wherein responsive to detecting that the communication device is coupled to the user computing device, the hardware processor is to transmit, using a configuration channel of the USB-C port, a request to the user computing device to configure the first pair of differential data channels to operate in a DisplayPort mode.

26. The system of claim 21, wherein the large-format display device comprises:

a feedback device to capture parameter data associated with user interactions with a touch screen of the large-format display device; and

a second wireless transmission interface to transmit the captured parameter data to the peripheral device.