CLAIMS

~~**WHAT IS CLAIMED IS:**~~

1. An apparatus, comprising:

a touchscreen panel comprising:

a set of transmit lines; and

a set of receive lines;

a set of transmit drivers configured to generate a set of transmit signals based on a set of pulse width modulated (PWM) signals, respectively, wherein the set of transmit drivers are configured to generate corresponding transmit signals so as to include a set of pulses, wherein each pulse of the set of pulses is based on a distinct set of PWM pulses; and

a set of receivers configured to receive a set of receive signals via the set of transmit lines and the set of receive lines, wherein the set of receive signals are based on the set of transmit signals.;

~~2. The apparatus of claim 1,~~ wherein ~~each of~~ the set of transmit ~~driver is~~drivers are configured to generate the ~~corresponding~~ set of transmit ~~signal so as to include a set of pulses, wherein each pulse of~~ signals based on distinct equivalent circuits presented to the set of ~~pulses is based on a set of PWM pulses of~~transmit drivers by the ~~corresponding PWM signal~~touchscreen panel, such that the set of receive signals are substantially the same in amplitude, phase, and slew rate when there is no load on the touchscreen panel.

~~3~~2. The apparatus of claim ~~2~~1, wherein the transmit driver is configured to generate each pulse of the set of pulses with a slew rate based on the set of PWM pulses.

~~4~~3. The apparatus of claim ~~2~~1, wherein the transmit driver is configured to generate each pulse of the set of pulses with an amplitude based on the set of PWM pulses.

~~5~~4. The apparatus of claim ~~2~~1, wherein the transmit driver is configured to generate each pulse of the set of pulses with a phase based on the set of PWM pulses.

~~6~~5. The apparatus of claim ~~2~~1, wherein the set of pulses comprises a set of pulses

transmitted at a substantially constant frequency.

~~7~~6. The apparatus of claim ~~2~~1, wherein each pulse of the set of pulses is modulated with a code or frequency identifying the corresponding transmit driver that transmitted the set of pulses.

~~8~~7. The apparatus of claim 1, wherein each of the transmit drivers comprises a class-D amplifier.

~~9~~8. The apparatus of claim 1, wherein each of the transmit drivers comprises:

a first field effect transistor (FET);

a second FET;

a third FET; and

a fourth FET coupled in series with the first, second, and third FETs between an upper voltage rail and a lower voltage rail, wherein the corresponding PWM signal includes a direction signal and a rate signal, wherein gates of the first and fourth FETs are configured to receive the direction signal, wherein gates of the second and third FETs are configured to receive the rate signal, and wherein the corresponding transmit signal is produced at an output node between the second and third FETs.

~~10~~9. The apparatus of claim 1, wherein each of the transmit driver further comprises:

a resistor; and

a fifth FET coupled in series between a source of a common mode voltage and the output node, wherein the fifth FET includes a gate configured to receive a set common mode signal for setting a common mode voltage of the corresponding transmit signal.

~~11. The apparatus of claim 1, wherein the set of transmit signals include sets of pulses with different slew rates, respectively.~~

~~12~~10. The apparatus of claim 1, wherein the set of transmit signals include sets of pulses with different slew rates, respectively.

11. The apparatus of claim 1, wherein the set of transmit signals include sets of pulses with different slew rates, respectively, to cause the set of receive signals at each of the receivers to include pulses having substantially the same slew rate regardless of which of the transmit drivers transmitted the transmit signals.

~~13~~12. A method, comprising:

generating a set of transmit signals based on a set of pulse width modulated (PWM) signals, respectively;

applying the set of transmit signals to a set of transmit lines of a touchscreen panel, respectively, wherein the set of transmit drivers are configured to generate corresponding transmit signals so as to include a set of pulses, wherein each pulse of the set of pulses is based on a distinct set of PWM pulses; and

receiving a set of receive signals via the set of transmit lines and a set of receive lines, wherein the set of receive signals are based on the set of transmit signals~~.~~

~~14. The method of claim 13~~, wherein ~~generating~~the set of transmit signals are generated based on distinct equivalent circuits presented to the set of transmit ~~signals comprises generating the set of transmit signals~~ drivers by the touchscreen panel, such that ~~each of the transmit signals includes a set of pulses, wherein each pulse of~~ the set of ~~pulses is based on a set of PWM pulses of~~receive signals are substantially the ~~corresponding PWM signals~~same in amplitude, phase, and slew rate when there is no load on the touchscreen panel.

~~15~~13. The method of claim ~~14~~12, further comprising configuring the set of PWM pulses to set a slew rate for each pulse of the set of pulses.

~~16~~14. The method of claim ~~14~~12, further comprising configuring the set of PWM pulses to set an amplitude for each pulse of the set of pulses.

~~17~~15. The method of claim ~~14~~12, further comprising configuring the set of PWM pulses to set a phase of each pulse of the set of pulses is generated.

~~18~~16. The method of claim ~~14~~12, wherein generating each of the transmit signal

comprises generating the set of pulses such that the pulses are substantially periodic.

~~19~~17. The method of claim ~~14~~12, wherein generating each of the transmit signal comprises generating the set of pulses such that each pulse is modulated with a code or frequency identifying the corresponding transmit driver transmitting the set of pulses.

~~20~~18. The method of claim ~~13~~12, wherein generating the set of transmit signals comprises generating the set of transmit signals such that the transmit signals include sets of pulses with different slew rates, respectively.

~~21~~19. The method of claim ~~13~~12, wherein generating the set of transmit signals comprises generating the set of transmit signals to include sets of pulses with different slew rates, respectively, to cause the set of receive signals at each of the receivers to include pulses having substantially the same slew rate regardless of which of the transmit drivers transmitted the transmit signals.

~~22~~20. An apparatus, comprising:

means for generating a set of transmit signals based on a set of pulse width modulated (PWM) signals, respectively;

means for applying the set of transmit signals to a set of transmit lines of a touchscreen panel, respectively, wherein the set of transmit drivers are configured to generate corresponding transmit signals so as to include a set of pulses, wherein each pulse of the set of pulses is based on a distinct set of PWM pulses; and

means for receiving a set of receive signals via the set of transmit lines and a set of receive lines, wherein the set of receive signals are based on the set of transmit signals, wherein the set of transmit signals are generated based on distinct equivalent circuits presented to the means for generating the set of transmit signals by the touchscreen panel, such that the set of receive signals are substantially the same in amplitude, phase, and slew rate when there is no load on the touchscreen panel.

~~23. The apparatus of claim 22, wherein the means for generating the set of transmit signals comprises means for generating the set of transmit signals such that each of the transmit signals~~

~~includes a set of pulses, wherein each pulse of the set of pulses is based on a set of PWM pulses of the corresponding PWM signal.~~

~~24. The apparatus of claim 23~~21. The apparatus of claim 20, further comprising means for configuring the set of PWM pulses to set a slew rate for each pulse of the set of pulses.

~~25~~22. The apparatus of claim ~~23~~20, further comprising means for configuring the set of PWM pulses to set an amplitude for each pulse of the set of pulses.

~~26~~23. The apparatus of claim ~~23~~20, further comprising means for configuring the set of PWM pulses to set a phase associated with the set of pulses is generated.

~~27~~24. The apparatus of claim ~~23~~20, wherein the means for generating the transmit signals comprises means for generating the set of pulses such that the pulses are substantially periodic.

~~28~~25. The apparatus of claim ~~23~~20, wherein the means for generating the transmit signals comprises means for generating the set of pulses based on a code or frequency identifying the corresponding transmit driver transmitting the set of pulses.

~~29~~26. The apparatus of claim ~~22~~20, wherein the means for generating the set of transmit signals comprises means for generating the set of transmit signals such that the transmit signals include sets of pulses with different slew rates, respectively.

~~30.~~27. The apparatus of claim ~~22~~20, wherein the means for generating the set of transmit signals comprises means for generating the set of transmit signals to include sets of pulses with different slew rates, respectively, to cause the set of receive signals at each of the receivers to include pulses having substantially the same slew rate regardless of which of the transmit drivers transmitted the transmit signals.